TACT 2023

International Thin Films Conference

2023年國際鍍膜科技研討會

November 12-15, 2023

GIS TAIPEI TECH Convention Center

National Taipei University of Technology, Taipei, Taiwan

Organized by

- Taiwan Association for Coating and Thin Film Technology (TACT), Taiwan
- Department of Materials and Mineral Resources Engineering, National Taipei University of Technology (Taipei Tech), Taiwan

Sponsored / Endorsed by

- American Vacuum Society (AVS)
- Korean Vacuum Society (KVS)
- Thin Films Society (TFS)
- Japan Society of Vacuum and Surface Science (JVSS)
- RSC Applied Interfaces
- National Science and Technology Council (NSTC), Taiwan
- Department of Information and Tourism, Taipei City Government
- Taiwan Instrument Research Institute (TIRI), Taiwan
- Taiwan Vacuum Society (TVS)

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- Superior PVD hard coating system
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Instrumentation for Novel Material

Joint Development for the Preliminary Study and Growth of 2D TMDs Material

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Process and Equipment Development for 2D TMDs Material

- **新穎材料檢測驗證**
  Advanced Material Testing and Verification
- **氣態源二維材料沉積技術開發**
  2D TMDs Material Deposition R&D Based on Gas Precursor
- **中大尺寸沉積系統設計與流場模擬**
  Chamber and Process Module
  Development Based on CFD and Thermal Simulation
- **拉曼檢測與試驗參數驗證**
  In-situ Raman Spectrometry for Process Development
- **二維材料製程與設備開發人才培訓**
  Professional Training in 2D TMDs Material Process & Equipment Development

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Taiwan Instrument Research Institute

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國立中興大學材料科學與工程學系
創立 30 週年慶祝大會（2023 年 6 月 3 日）

2023 年 6 月 3 日本系於國立中興大學小禮堂舉辦 30 週年系慶慶祝大會暨 111 學年度畢業典禮，活動現場氣氛熱鬧、充滿活力，包含校長、工學院院長、歷屆系友會會長、師長、系友及家長蒞臨共襄盛舉。午宴提供精緻 Buffet，約 2 百人校友一同參與，場面盛大且歡樂。

當天邀請薛富盛校長、工學院楊明德院長、施漢章教授、顏秀崗教授、宋振銘教授、林佳鋒教授等人，為應屆畢業生共勉之，期許畢業生未來能在材料科學領域展現才華，師長也送上衷心祝福，祝福每位畢業生展翅高飛。第三屆系友會會長郭昇鑫及傑出系友們也分享求學與職場經驗，鼓勵學弟妹勇於創新、不畏懼挑戰並持續成長學習，拓展及開創不同職涯視野。

會後，邀請歷屆系友們回母系齊聚一堂，系友與師長間彼此寒暄敘舊，氣氛歡笑熱鬧，相互合影留念，共歡難得相聚的時光！本系特地製作精美禮品贈送給所有系友，與系友們一同留下這美好的回憶。本系畢業系友廣佈國內、外產業界，畢業系友秉持”誠樸精勤”校訓，在其工作崗位上發揮所長且善盡職責，對於台灣材料科技產業發展貢獻卓著。

最後，本系創立三十週年系慶慶祝大會在歡樂及感恩氣氛下圓滿落幕，並期許本系下一個三十年在教學、研究、社會責任與貢獻上，更上一層樓，拓展中興大學材料系之影響力與競爭力。

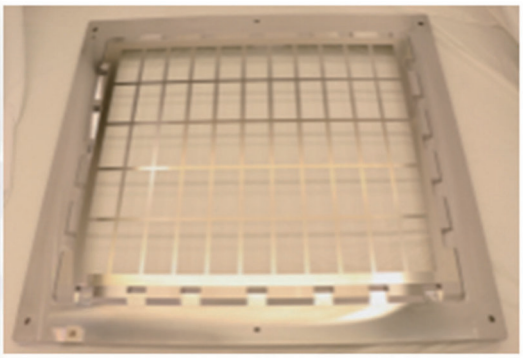
▲ 施漢章創所所長致詞

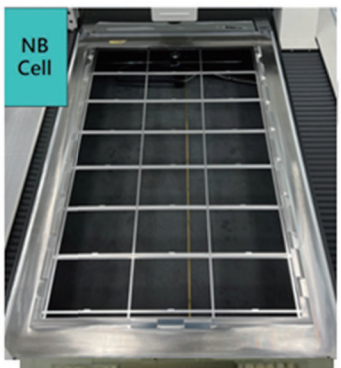
▲ 興大薛富盛校長/教授致詞

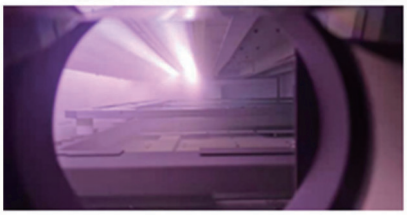
▲ 興大工學院楊明德院長致詞

▲ 林佳鋒主任與陽明交大電子所鄭晃忠教授合影

▲ 本系 30 週年系慶大合照







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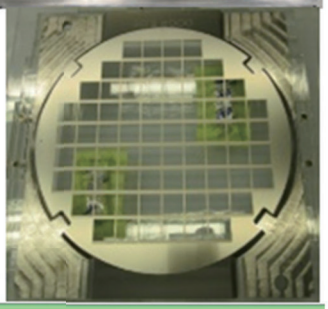

How To Reach Us

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FAX: +886-6-3842599
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Description	Spec
Coating Material	Al_2O_3
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Coating Type	PVD
Step Coverage	Side ≥90% Top
Coating Capability	40pc/M (G6H)
Coating U%	≤±8%
Thickness	1.5~3um
Resistance	≥1.0E11 Ω

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Welcome Message from the President of TACT 2023

Since its establishment on September 3, 1999, the Taiwan Association for Coating and Thin Film Technology (TACT) has steadily grown into the most dynamic organization within the realm of thin-film and coating technology in Taiwan. Building upon the success of our eight previous international conferences, which include Asia CVD 2004, TACT 2009, TACT 2011, TACT 2013, TACT 2015, TACT 2017, TACT 2019, and TACT 2021, we are excited to announce the first post-pandemic international conference, TACT 2023, scheduled to take place in Taipei from November 12 to 15, 2023.

TACT holds great significance as a biennial gathering designed for the exchange of knowledge and provides an interactive platform for networking and collaboration within the academic and industrial community. The TACT2023 conference will encompass a wide range of research topics relating to thin-film, coating, and plasma technologies in areas such as sustainable energy, semiconductors, optoelectronics, flexible devices, and protective, tribological, organic, biological, and functional coatings. We are proud to have received endorsements from esteemed organizations including AVS (American Vacuum Society), KVS (Korean Vacuum Society), TFS (Thin Films Society), JVSS (Japan Society of Vacuum and Surface Science), and TVS (Taiwan Vacuum Society). We express our gratitude to the National Science and Technology Council for their invaluable support, as well as to the dedicated team at the National Taipei University of Technology and the numerous local and international scholars who have made significant contributions to the conference.

With over 500 abstract submissions, including invited and contributed papers, as well as posters, TACT 2023 promises to be a platform for over 600 researchers and engineers from more than 20 countries to engage in this significant event. Selected papers will be published in special issues of prestigious journals such as "Thin Solid Films" and "Surface and Coatings Technology" after rigorous review processes.

On behalf of TACT, we extend our heartfelt gratitude to all attendees. We invite you to savor your time in Taiwan and enjoy the enriching experience that TACT 2023 promises to offer.

Fu-Hsing Lu
President, Taiwan Association for Coating and Thin Film Technology
Professor, National Chung Hsing University, TAIWAN

TACT 2023 Directions and Maps

From Taoyuan International Airport (TPE) to National Taipei University of Technology, Taipei, Taiwan:

入境後，找尋「高鐵/巴士乘車處」指示
After arrival, search for the sign "To High Speed Rail/Bus Station"

搭乘長榮巴士5201或5202
Take Evergreen Bus (5201 or 5202) to National Taipei University of Technology

第一航廈請於6號巴士站等車
Wait for the Evergreen Bus at Bus Stop 6 (T1) 第二航廈請於5號巴士站等車 Wait for the Evergreen Bus at Bus Stop 5 (T2)

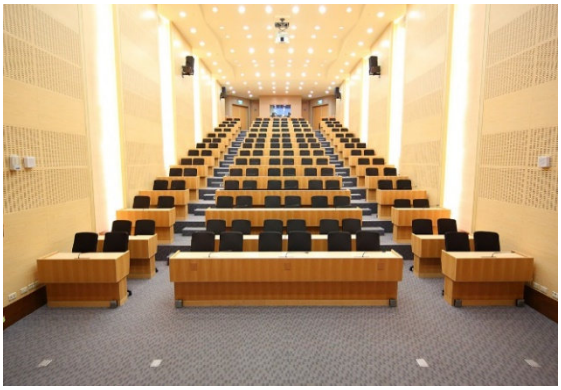
於「國立臺北科技大學站」下車
Get off at the "National Taipei University of Technology" bus stop

TACT 2023 will be held at the GIS Taipei Tech Convention Center.

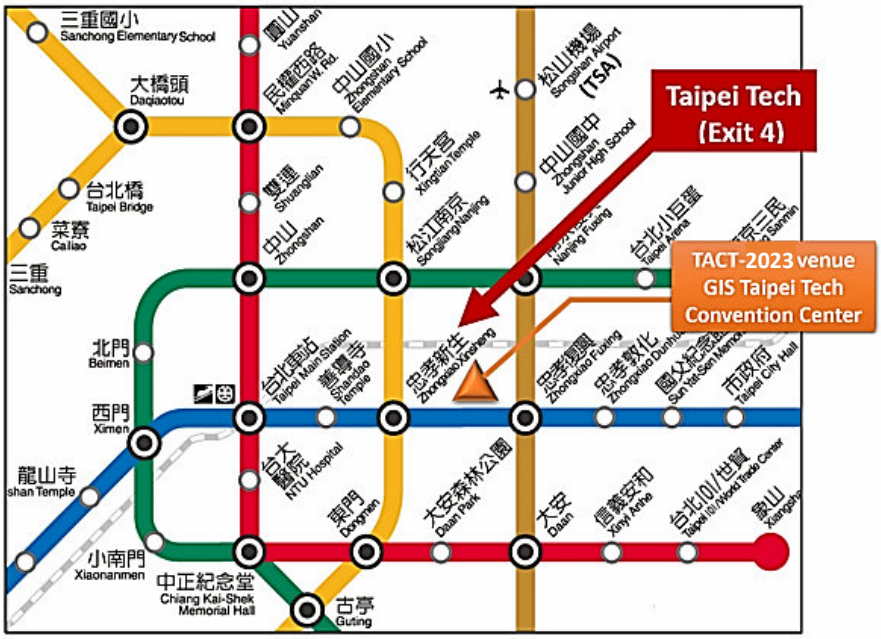
集思北科大會議中心（億光大樓 2F~3F,國立臺北科技大學）
No.1, Sec.3, Zhongxiao E. Rd, Da'an Dist., Taipei City 106, Taiwan
(Next to No.197, 2~3F Everlight Building, National Taipei University of Technology)

GIS Taipei Tech Convention Center Located strategically at the heart of the bustling Taipei City, GIS Taipei Tech Convention Center is easily accessible from MRT Zhongxiao Fuxing Station, MRT Zhongxiao Xinsheng Station and Jianguo Elevated Road. The venue is equipped with ample parking lots to accommodate large capacity events.

Characterized by the usage of natural lighting and minimalistic-cum-high-tech interior design, the venue offers various multiple-purpose meeting rooms that can be flexibly set-up to meet your event needs. GIS Taipei Tech Convention Center comprises of 2 stairway meeting rooms and a stairway meeting hall which can host 60 and 100 delegates respectively. The venue also has plenty of networking spaces for the connection of harmonious minds. GIS Taipei Tech Convention Center coupled with professional event consulting services and an expert event execution team, we promise to deliver a mesmerizing and human-centric event experience like none other, redefining your meeting experience.



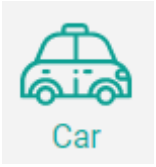
Map of GIS TAIPEI TECH Convention Center



Zhongxiao Fuxing Station(忠孝復興站), Exit 1： Walk straight outside the station. Here you will find the GIS Taipei Tech Convention Center on your right-hand side. (6 minutes walking)

Zhongxiao Xinsheng Station(忠孝新生站), Exit 4: Head towards JianGuo South Road direction and crossover Jianguo Elevated Rd. (6 minutes walking) Walk from Zhongxiao-Xingsheng metro station exit 4 along Zhongxiao E. Rd. toward east (take a U-turn at the exit). After passing the gate of Taipei Tech and Jianguo elevated expressway, the GIS Taipei Tech Convention Center is on the left. The venue of TACT-2023 is at the 2nd floor of the Everlight Building (grey in color). The walking distance is about 500 meters.

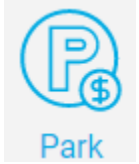
Bus Stop: Zhengyi Post Office：1813, 1815, 212, 232 Sub, 232 Express, 262,



Jianguo Flyover Rd

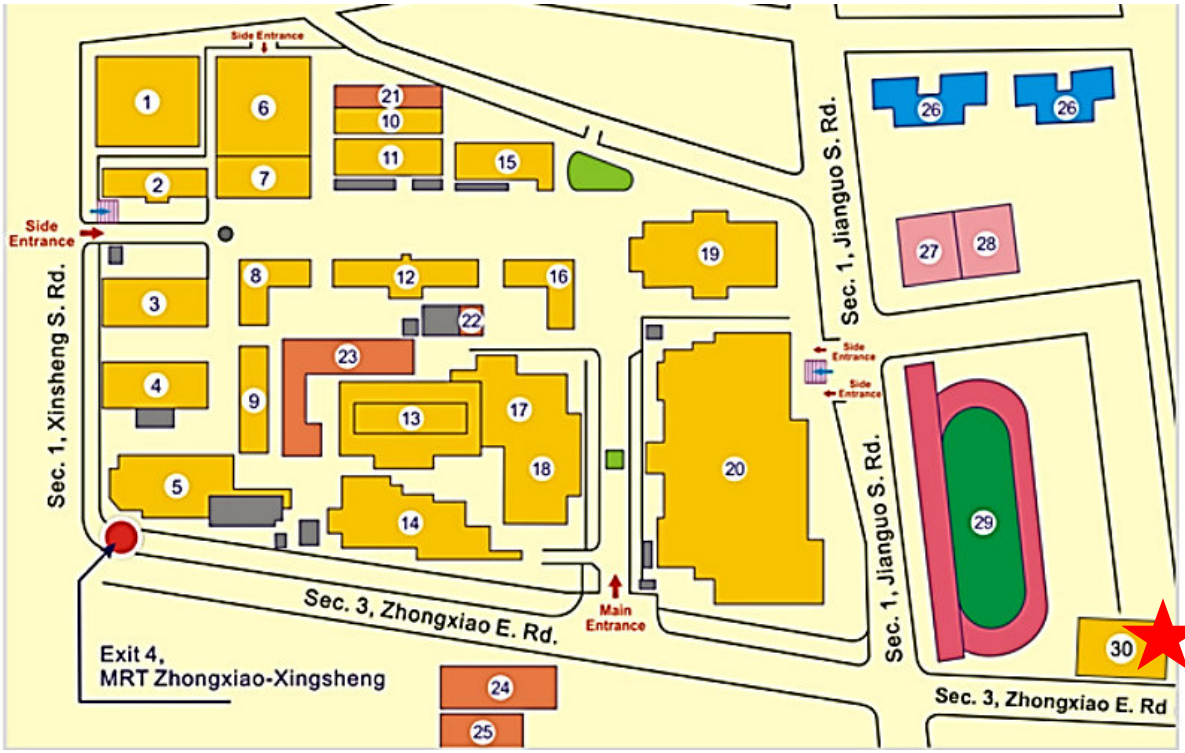
Southbound Vehicles：From Jianguo Flyover, take the left turn onto Section 3 Zhongxiao E Rd. Here you will find the GIS Taipei Tech Convention Center on your left-hand side.

Northbound Vehicles：Take the Xinhai Rd ramp at Jianguo Flyover. Here you will find the main entrance to GIS Taipei Tech Convention Center.



Everlight Building Car Park (Located at the underground of GIS Taipei Tech Convention Center)：Located at Section 1 Jianguo S Rd. Toward the north on Section 1 Jianguo S Rd, go through Section 3 Zhongxiao E Rd. Here you will find the entrance to the underground car park on your right-hand side. NT$ 50 per hour.

TACT 2023 Campus Map



Main Entrance / Side Entrance

1.Dept. of Electro-Optical Engineering
2.Sun Yat-Sen Memorial hall (Environmental Engineering)
3.Dept. of Civil Engineering
4.Dept. of Materials and Mineral Resources Engineering
5.Design Building
6.Hong-Yue technology Research Building
7.Sixth Academic Building
8.First Academic Building
9.Fourth Academic Building
10.Biotechnology Building Biotech
11.Dept. of Chemical Engineering
12.Second Academic Building
13.Third Academic Building
14.General Studies Building
15.Dept. of Molecular Science and Engineering Building
16.Chemistry Building
17.Library
18.Administration Building
19.Chiang Kai-Shek Memorial Hall
20.Integrated Technology Complex
21.Alumnus Association
22.Red House (Historic Monument)
23.Corridor
24.Innovation and Exhibition Center
25.Cooperative Education Building
26.Dormitory
27.Tennis Court
28.Basketball Court
29.Track & Field
30.Everlight Building(億光大樓)
(GIS Taipei Tech Convention Center)
集思北科大會議中心

TACT 2023 Banquet

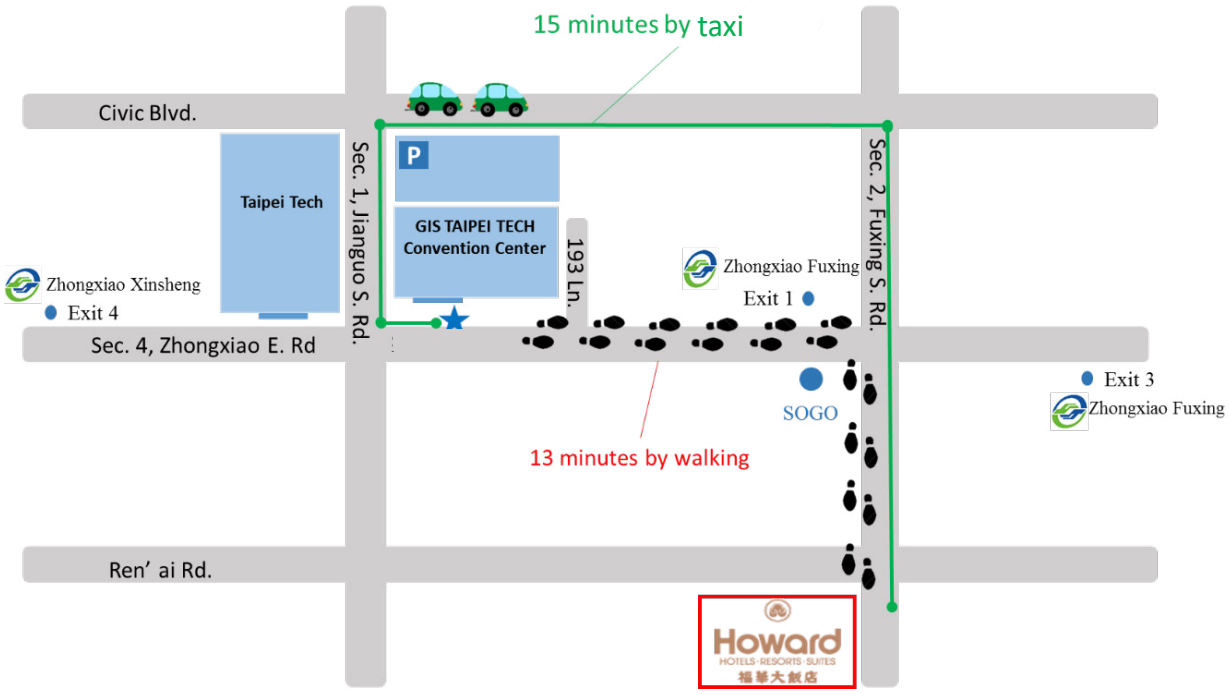
Time: 6:00 – 8:30 pm, Tuesday, November 14, 2023

Banquet Hall, B2F, THE HOWARD PLAZA HOTEL TAIPEI

台北福華大飯店 B2/宴會廳 (台北市大安區仁愛路三段 160 號)

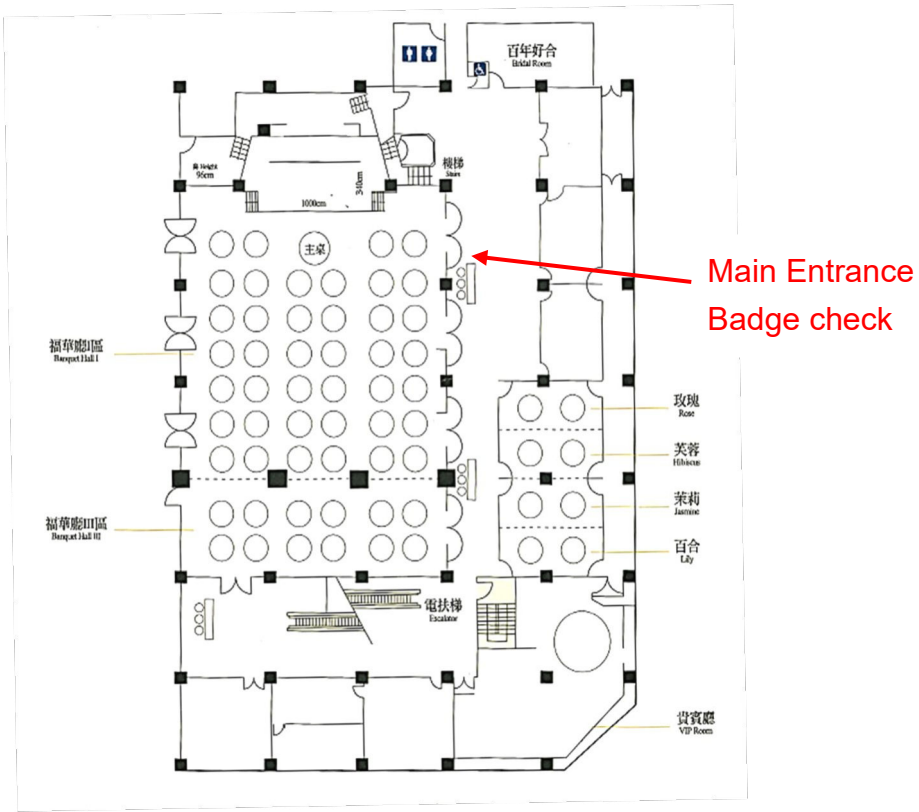
(#160, Sec. 3, Ren-Ai Rd., Taipei) http://www.howard-hotels.com.tw/en/

This year's Reception will be at the HOWARD PLAZA HOTEL TAIPEI. In 1984, Howard Hotel Group invested in the construction of the group's first hotel: The Howard Plaza Hotel Taipei on Ren-ai Rd, Taipei. After 34 years of business, the group now owns four commercial hotels in Taipei, Hsinchu, Taichung and Kaohsiung, two service apartment in Tianmu and East District as well as three resorts in Green Bay, Shihmen Reservoir, and Kenting. It is the largest five-star hotel chain in Taiwan. Insisting on the business philosophy of "Sincere Howard heart with heartfelt service", Howard Plaza Hotel offers the most refined products, cordial and detailed services to make guests feel it is well worth the value and they are right at home.

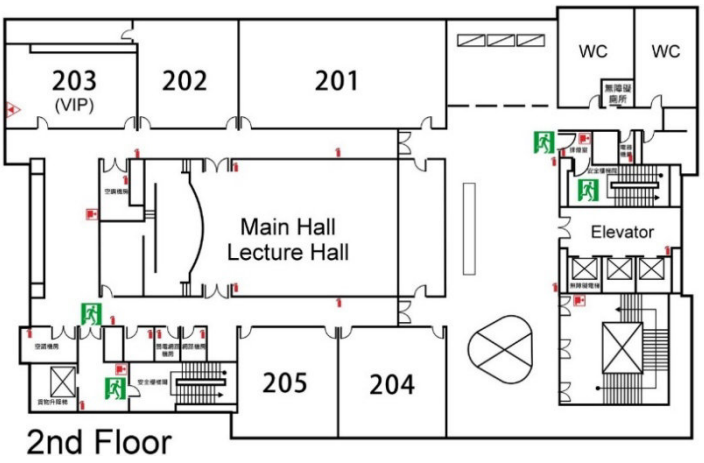


Traffic:

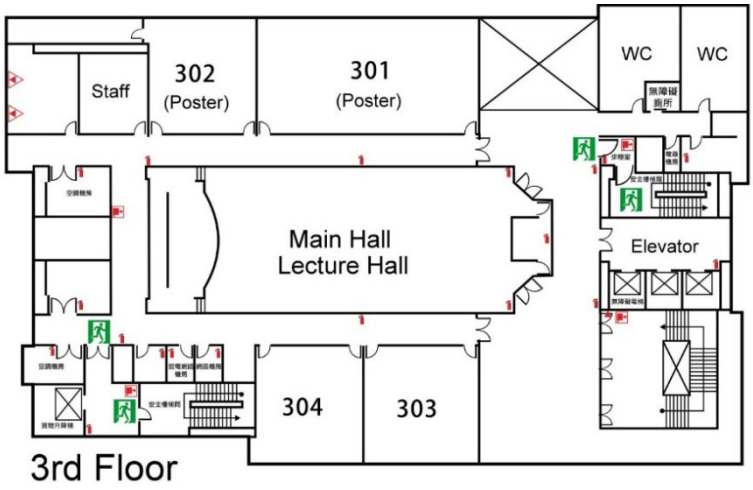
1. Walking is recommended, and it only takes **13 mins** walking from the GIS TAIPEI TECH Convention center.
2. It takes 15 mins by the taxi. It will even take longer during the rush hour.



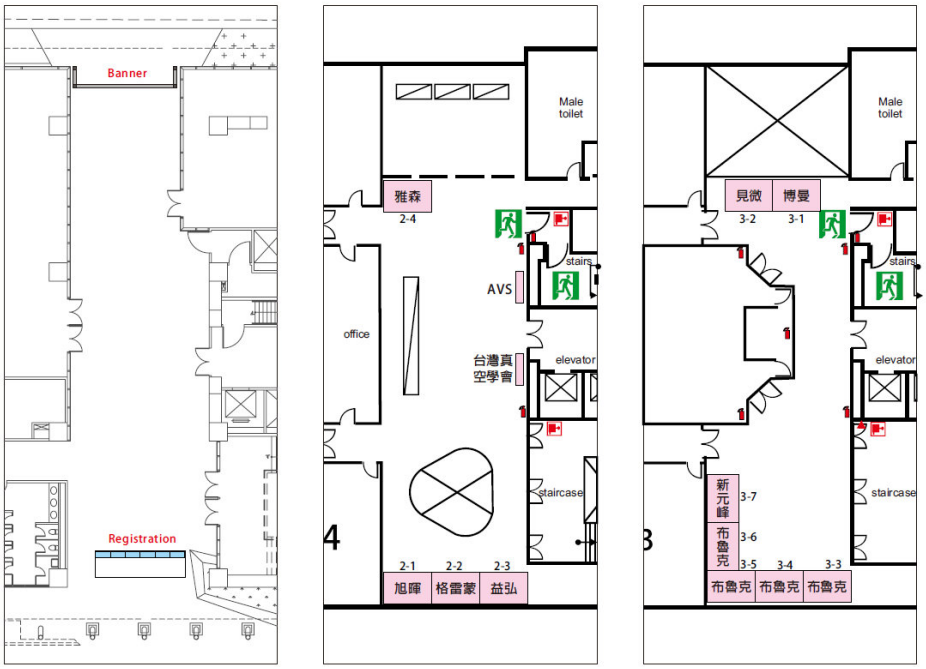
TACT 2023 Conference Rooms



2nd Floor



3rd Floor



1F 2F 3F

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2.	台灣格雷蒙·偉斯企業	Gredmann http://www.gredmann.com/	Gredmann 台灣格雷蒙・偉斯企業	2-2
3.	益弘儀器股份有限公司	E HONG Instruments Co., Ltd. https://www.ehong.com.tw	益弘儀器股份有限公司 E HONG Instruments Co., Ltd.	2-3
4.	雅森科技股份有限公司	ASHERN https://www.ashern.com.tw	雅森科技 ASHERN	2-4
5.	台灣博曼有限公司	Bowman Analytics Taiwan Co., LTD. https://www.bowman.com.tw	BOWMAN Coating Measurement Instruments	3-1
6.	見微科技股份有限公司	UCSM Technology Crop. https://www.ucsm.com.tw/	UCSM Technology	3-2
7.	台灣布魯克生命科學股份有限公司	Bruker Taiwan Co., Ltd https://www.bruker.com	BRUKER	3-3 3-4 3-5 3-6
8.	新元鋒精密股份有限公司	New YF Precision Co. https://www.twyfp.com/	NEW YF PRECISION CO. 新 元 鋒 精 密	3-7

9.	優貝克科技股份有限公司	Ulvac Taiwan Inc. https://www.ulvac.com.tw/	ULVAC
10.	永源科技股份有限公司	Surf Tech Technology Co., Ltd. https://www.surftech.com.tw/	SURFTECH 永源科技股份有限公司
11.	NAR Labs 國家實驗研究院台灣儀器科技研究中心	NAR Laboratories Taiwan Instrument Research Institute https://www.tiri.narl.org.tw/	NARLabs 國家實驗研究院 台灣儀器科技研究中心 Taiwan Instrument Research Institute
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14.	義守大學材料科學與工程學系	I-Shou University Department of Materials Science and Engineering https://www2.isu.edu.tw/newsite/homepage.php?dept_mno=829&dept_id=1&_pages=3	Materials Science and Engineering I-Shou University
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TACT 2023 Acknowledgments

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- RSC Applied Interfaces
- National Science and Technology Council (NSTC), Taiwan
- Department of Information and Tourism, Taipei City Government
- Taiwan Instrument Research Institute (TIRI)

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Plenary Session I

Nov. 12, 2023 (Sun) 14:00-14:50

Observing dislocations during epitaxial growth of colloidal crystals

Frans Spaepen†*, Ilya Svelizky, Seongsoo Kim, David A. Weitz

School of Engineering and Applied Sciences, Harvard University, Cambridge MA, 02138 USA

ABSTRACT

Colloidal systems consist of micrometer-size spheres suspended in a liquid. They closely mimic atomic systems, in that they form similar phases (liquids, crystals and glasses) and exhibit similar dynamics, such as, for example, dislocation motion and crystal nucleation. By tracking the particles by confocal microscopy it is possible to observe these complex dynamic phenomena down to the particle, i.e. atomic, level, in three dimensions and in real time.

Colloidal single crystals can be grown epitaxially by sedimentation onto a patterned template. The slight mismatch between the equilibrium lattice parameter of the crystals and the template leads to the formation of misfit dislocations. Confocal microscopy allows us to observe the nucleation, motion and interactions of these dislocations in full detail. We observe an unexpectedly sharp two-stage strain relaxation mechanism, blocking of dislocation motion, and the formation of two types of complex dislocation networks, all of which goes beyond the classical single-dislocation relaxation model.

Keywords: Colloids, epitaxy, dislocations, relaxation

Prof. Frans A. Spaepen

- Harvard School of Engineering and Applied Sciences, USA
- Harvard Center for Nanoscale Systems, USA
- Rowland Institute, USA
- Harvard Materials Research Laboratory/Materials Research Science and Engineering Center, USA
- Harvard Division of Applied Sciences, USA

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Prof. Frans Spaepen is John C. and Helen F. Franklin Professor of Applied Physics at Harvard University. He got his undergraduate degree, in Metallurgical Engineering, at the K.U. Leuven in 1971, and a Ph.D. in Applied Physics from Harvard University in 1975. He joined the faculty of the Division of Applied Sciences at Harvard in 1977 as Assistant Professor, was appointed Associate Professor in 1981, and Full Professor in 1983. In 1984 and 2007 he was a Visiting Professor at the University of Leuven, and in 2000-01 a Humboldt visitor in Köln and Jülich. From 1990 till 1998 he was Director of the Harvard Materials Research Laboratory/Materials Research Science and Engineering Center. From 2002 to 2013 he was the Director of the Rowland Institute at Harvard. In 2008-09 he was Interim Dean of the School of Engineering and Applied Sciences and in 2009-10, he was Interim Director of Harvard's Center for Nanoscale Systems.

His research interests span a wide range of experimental and theoretical topics in materials science, such as amorphous metals and semiconductors (viscosity, diffusion, mechanical properties), the structure and thermodynamics of interfaces (crystal/melt, amorphous/crystalline semiconductors, grain boundaries), mechanical properties of thin films, and colloidal systems as models for the study of dynamics and defects in crystals and glasses.

He is a Fellow of the American Physical Society, the Materials Research Society, and the TMS. He is a member of the National Academy of Engineering and holds an honorary doctorate from the ETH-Zürich.

Selected Awards and Honors:

- ✓ Member, National Academy of Engineering, 2008
- ✓ Fellow, American Physical Society (chairman of the Division of Materials Physics in 1992)
- ✓ Fellow, Metallurgical Society of the American Institute of Mining, Metallurgical and Petroleum Engineers
- ✓ Member, Vlaamse Academie voor Wetenschappen en Kunsten
- ✓ Fellow, Materials Research Society

Plenary Session II

Nov. 14, 2023 (Tue) 09:00-09:50

Electronic Thin Film Reliability in 3D IC Technology

King-Ning Tu

Department of Materials Science and Engineering, and Dept. of Electrical Engineering, City University of Hong Kong, Kowloon, Hong Kong

ABSTRACT

Near the ending of Moore's law for 2D IC technology, microelectronics industry has introduced 3D IC, by vertical stacking of device chips, to extend the advance for consumer electronic products. Some new structure elements such as TSV and micro-bump are introduced. Due to dense packing and increase of Input/Output counts, current crowding occurs frequently, and Joule heating is serious. To remove heat, temperature gradient is required. However, a large temperature gradient can induce thermomigration. Therefore, in 3D IC, we have to consider electromigration and thermomigration together. Furthermore, stress-migration occurs too because of thermal expansion difference in materials integration. In this talk, the basic and applications of electromigration, thermomigration, and stress-migration will be covered.

Prof. King-Ning Tu

- Chair Professor, Department of Electrical Engineering
- Chair Professor, Department of Advanced Design and Systems Engineering
- Chair Professor, Department of Materials Science and Engineering City University of Hong Kong China

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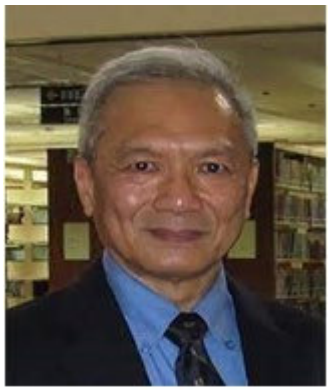

Personal Information:

Professor TU King-Ning is the Chair Professor of Materials and Electrical Engineering of the City University of Hong Kong. Professor Tu received his BSc degree from National Taiwan University, MSc degree from Brown University, and PhD degree on applied physics from Harvard University in 1968. Professor Tu has been the TSMC Chair Professor and E. Sun Scholar of National Chiao Tung University, Taiwan. Professor Tu is a world leader in the science of thin films, especially in its applications in microelectronic devices, packaging and reliability. His recent work is on predicting failure in modern microelectronics based on entropy production.

Selected Awards and Honors:

- ✓ IEEE Division of Components, Packaging, and Manufacturing Technology Award in 2017
- ✓ Materials Research Society - Fellow 2014
- ✓ TMS John Bardeen Award in 2011
- ✓ TMS-EMPM Division Distinguished Scientist/Engineer Award in 2006
- ✓ Member of Academia Sinica, ROC, 2002
- ✓ Humboldt Research Award for Senior US scientists, 1996
- ✓ Acta/Scripta Metallurgical Lecturer, 1990 - 1992
- ✓ Churchill College - Overseas Fellow, 1990
- ✓ The Metallurgical Society - Fellow, 1988
- ✓ Materials Research Society - President, 1981
- ✓ The Metallurgical Society - Application to Practice Award, 1981
- ✓ American Physical Society - Fellow, 1981

Keynote Session I

Nov. 12, 2023 (Sun) 14:50-15:30

Negative ion bombardment: how research and literature allows quantification

Diederik Depla

Department of Solid State Sciences, Ghent University, Belgium

Many thin film applications are based on oxides. The optimization of the oxide properties is an on-going process and requires a deep understanding of the deposition process. A typical feature of reactive (magnetron) sputter deposition is the presence of negative oxygen ions. The presence of negative ions in gas discharges was already postulated in the very first paper on sputtering. Indeed, the paper by Grove, identified as the first paper on sputtering states: "My present experiments show, I believe, that in induction across gaseous dielectrics there is a commencement, so to speak, of decomposition, a polar arrangement not merely of the molecules, irrespective of their chemical characters, but a chemical alternation of their forces, the electronegative element being determined or directed, though not traveling in one direction, and the electropositive in the opposite direction."

In a magnetron oxygen containing discharge, two groups of ions can be identified based on their energy. Low energy ions are generated in the bulk of the discharge. The high energy ions are emitted from the oxide or oxidized target surface. As these ions are generated at the cathode, they are accelerated by the electrical field towards the growing film. Depending on the discharge voltage and the powering method, their energy is typically several tenths to hundreds electron volt. As such the ions can have a strong impact on the film properties. In the case of magnetron sputtering, this will lead to an inhomogenous film properties over the substrate facing the locally eroded target. Due to their high energy, the trajectory of negative ions can be easily predicted which has led to several strategies to avoid negative ion bombardment such as facing target sputtering and off-axis sputtering. This paper reviews several facets of the production, the measurements and the impact on the film properties of negative ions during reactive sputtering. Despite the many illustrative studies on the impact of negative oxygen ions, quantification is often lacking as the negative ion yield is only known for a few oxides. The compilation of several literature sources allows the discussed trends to be placed in a quantitative framework.

Prof. Diederik Depla

- Secretary of the thin film division of the IUVSTA
- Symposium Chair for symposium F at ICMCTF
- President of the Belgian Vacuum Society

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Personal Information:

D. Depla has received his Master Degree in Chemistry in 1991 at Ghent University (Belgium). In 1996 he promoted with a PhD thesis in Solid State Chemistry on spray drying of precursors for superconductors. After a short period as senior scientist in the Department of Solid State Sciences, he became in 1999 Professor at the same department. His research focuses on the fundamental aspects of reactive magnetron sputter deposition. He has shown the importance of ion implantation on this process, and explained the discharge voltage behavior during reactive sputter deposition. In this way, his continuous research in this area resulted in several publications. He is now as full professor head of the research group "Dedicated Research on Advanced Films and Targets" (DRAFT). More details can be found on www.draft.ugent.be D. Depla is Belgian representative of the IUVSTA, and secretary of the thin film division of this organization, and president of the Belgian Vacuum Society.

The film community, and the physical vapor deposition community in particular, is dominated by application driven research aiming to discover new materials and new methods to enhance the production capacity. Under the guidance of D. Depla, the research group has distinguished itself from this rather technological approach, and has set an own course seeking for answers on fundamental questions related to film growth and process control. Although this approach could lead to intractability, D. Depla has an open mind to answer these questions in an alternative manner which forms an important dynamic in the research group which currently consists of 3 PhD students (1 preparing his PhD thesis). The unique approach of the research group to tackle these fundamental questions, has propelled the research group to the forefront of the thin film community and we are today recognized as one of the world leading groups in reactive sputtering. A simple "google.com" search on "reactive sputter deposition" immediately shows a few links to the research group or the PI. The American Vacuum Society recently acknowledged the work of D. Depla through the "Bill Sproul Award 2022" "for his persistence to unravel the fundamental processes during reactive magnetron sputter deposition".

Selected Awards and Honors:

✓ Bill Sproul Award (AVS-ASED) 2022

Keynote Session II

Nov. 13, 2023 (Mon) 09:00-09:40

Self-healing ceramic coatings that operate in extreme environments

Samir Aouadi†*

University of North Texas, Denton, TX 76203, USA

ABSTRACT

This paper provides an overview of the latest research developments in the design and exploration of ceramic coatings with high temperature adaptive behavior. The adaptive behavior, triggered by thermal or thermo-mechanical stimulus, may be used to create smart surfaces that are able to change their chemistry and structure to achieve the desired functionality. The initial focus of the paper will be to provide an overview on the basics of self-repairing materials. This will be followed by a brief outline of the work that has been reported on self-healing/adaptive mechanisms in bulk ceramics. We will then focus on providing a thorough review on self-healing ceramics with a focus on adaptation/healing in tribology as well as thermal barrier, anti-corrosion, and oxidation resistant coatings. This overview will provide a fundamental understanding of the changes in the structural and chemical properties of these materials and how that correlates to their performance. This review also includes a discussion on anticipated future developments in this important and upcoming area of research.

Keywords: self-healing, ceramics, coatings, tribology

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Prof. Samir Aouadi

- General Chair - International Conference on Metallurgical Coatings and Thin Films (2023)
- Program Chair - International Conference on Metallurgical Coatings and Thin Films (2022)
- Program Vice-Chair - International Conference on Metallurgical Coatings and Thin Films (2021)
- Editor – Surface and Coatings Technology (2013-Pres.)
- Publications Chair - International Conference on Metallurgical Coatings and Thin Films (2019-2021)
- Advisory board member, European Materials Research Society (2016 – Pres.)
- Lead Editor - International Conference on Metallurgical Coatings and Thin Films (2013-2019)
- Advisory board member, CIMTEC (12th International Conference on Modern Materials and Technologies), Montecatini Terme, Italy (2010 – Pres.)
- Guest Editor-International Conference on Metallurgical Coatings and Thin Films (2011-2013)
- Guest Editor - Materials (2011-2013)
- Session Chair - International Conference on Metallurgical Coatings and Thin Films (2003-2007 and 2010-2016)
- Vice-Chair, ASM International, Great Plains Chapter (2001-2002).
- NSERC Industrial Postdoctoral Fellowship, Canada (1997-1998).

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Personal Information:

My area of expertise is in surface engineering, tribology, and high temperature ceramics for space, aerospace, energy, and defense applications, exemplified by my impactful work in smart/adaptive and wear resistant coatings for high temperatures, and self-healing ceramics. I have published > 100 papers in refereed journals (Total citations > 3410, h-index = 31) in excellent peer-reviewed journals including Acta Materialia, Ceramics International, Surface and Coatings Technology, and Applied Physics Letters. In my career, I have received over $4.65 M in funding from Federal Agencies and from industry.

Selected Awards and Honors:

- ✓ Nomination for College of Engineering Outstanding Teacher Award (2019)
- ✓ Reflectivity world record for x-ray reflectors (March 2002).
- ✓ Editor – Surface and Coatings Technology (2013-Pres.)
- ✓ Guest Editor - Materials (2011-2013)
- ✓ Reflectivity world record for x-ray reflectors (March 2002).
- ✓ NSERC Industrial Postdoctoral Fellowship, Canada (1997-1998).

Keynote Session III

Nov. 13, 2023 (Mon) 09:40-10:20

Development of functional high entropy alloy thin films by high power impulse magnetron sputtering technique

Jyh-Wei Lee[1,2,3,4†*]

[1]Department of Materials Engineering, Ming Chi University of Technology, Taiwan
[2]Center for Plasma and Thin Film Technologies, Ming Chi University of Technology, New Taipei, Taiwan
[3]Department of Mechanical Engineering, Chang Gung University, Taoyuan, Taiwan
[4]High Entropy Materials Center, National Tsing Hua University, Hsinchu, Taiwan

ABSTRACT

Concepts of high entropy alloys (HEAs) and multicomponent alloys (MCAs) were proposed by Yeh and Cantor, respectively, in 2004. Since then, the research on bulk HEA and MCA materials has attracted much attention due to their unique thermodynamic, mechanical, or thermal properties compared to traditional alloys. On the other hand, the HEA and MCA thin films have been fabricated to improve substrate materials' corrosion resistance, oxidation resistance, mechanical properties, and wear resistance. Among several thin film deposition methods, high power impulse magnetron sputtering (HIPIMS) is a unique coating technology developed for over 23 years. HiPIMS has been characterized by its ultra-high peak current and peak power density, which is beneficial for improving the thin film quality and achieving unique film properties, such as dense microstructure, high hardness, good adhesion, anti-corrosion performance, and specific electrochemical properties. In this work, we investigated the effect of nitrogen content on the phase transformation, mechanical properties, oxidation resistance, and anti-corrosion performance of VNbMoTaWN, TiZrNbTaFeN, TiZrNbTaFeBN, and VNbMoTaWTiAlN high entropy alloy thin films. Meanwhile, the effects of Ti contents on the corrosion resistance and biocompatibility of TiZrNbTaMo thin films were discovered. Finally, the energy efficiency improvement of the VNbMoTaWO thin films deposited on the graphite felt electrode of vanadium redox flow battery (VRFB) was explored. We can conclude that properly controlling chemical compositions and HiPIMS deposition parameters can produce good performance and specific properties from these functional high entropy alloy thin films, which can be further applied as protective or modification thin films in harsh environments, biomedical implants, and graphite felt electrodes in VRFBs and other potential application fields.

Keywords: Functional high entropy alloy thin films, High power impulse magnetron sputtering, biocompatibility, corrosion resistance, hardness

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Prof. Jyh-Wei Lee

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Prof. Jyh-Wei Lee received his BS, MS, and Ph.D. degrees from the National Tsing Hua University, Taiwan. Prof. Lee is the Chair of the AVS-Taiwan Chapter and a member of the Editorial Board of Surface & Coatings Technology, Applied Surface Science Advances, and China Surface Engineering. He is the AVS ASED Program Committee member. Prof. Lee is the Program Chair of ICMCTF2023 and General Chair of ICMCTF2024. He also serves as an International Program Committee Member, Symposium Chair, and Session Chair of several Famous International Conferences. Prof. Lee was the Dean of the College of Engineering, Tungnan University (TNU), Taiwan, from 2007 to 2010, and Director of the Research Center for Micro/Nanotechnologies, TNU, from 2005 to 2010. His research focuses on the nanocomposite and nanolaminated nitride, carbonitride and boronitride hard coatings for tribological applications, corrosion, and oxidation protection in related industries. Recently, he has worked on the research and development of high entropy alloy thin films and thin film metallic glass materials, which can be applied in the corrosion resistance, high-temperature, and biomedical fields. Prof. Lee is skilled in high power impulse magnetron sputtering (HIPIMS), pulsed DC magnetron sputtering, cathodic arc evaporation deposition and plasma electrolytic oxidation techniques, plasma diagnosis and feedback control, nanoindentation, AFM and related nanomechanical testing methods. Prof. Lee has some research on cold atmospheric plasma applications in medicine and health care. He also studied the chromizing and aluminizing processes for the Fe, Ni, and Co-based alloys to prolong their surface life at high temperatures in the past twenty years. Prof. Lee is the PI and Co-PI of more than 30 projects from the Taiwan government and industries, with a total budget of around 7.0 million US$ in the past three years. He holds 13 patents and publishes over 200 SCI journal papers and over 30 keynote/invited lectures in the field of PVD and related surface engineering technologies. The H-index of his published paper is 42.

Selected Awards and Honors:

- ✓ The World's Top 2% Scientists (2020 ~ 2022) published by Stanford University
- ✓ Research Award, MCUT, Taiwan (7 times since 2012)
- ✓ 17th National Innovation Award in Academic Research Category, Taiwan (2020)
- ✓ Excellent Paper Awards, TACT2020, TACT2021
- ✓ R & D Creativity Silver Award, The 18th Formosa Plastics Enterprise Application Technology Conference, Taiwan (2023)
- ✓ The Best Paper Award, The 18th Formosa Plastics Enterprise Application Technology Conference, Taiwan (2023)

Keynote Session IV

Nov. 14, 2023 (Tue) 09:50-10:30

Superhard $(MoSiTiVZr)N_x$ high-entropy nitride coatings

Jingchuan Li[1], Shu Wang[1], Sam Zhang[23†*]

[1]School of Materials and Energy, Southwest University, Chongqing, China
[2]School of Aeronautics, Harbin Institute of Technology, Harbin 150001 China
[3]Zhengzhou Research Institute, Harbin Institute of Technology, Zhengzhou 450000, China

ABSTRACT

This talk covers research background and current status of high-entropy alloy coatings with emphasis on (MoSiTiVZr)Nx high-entropy nitride coatings. Will illustrate that increase of N content leads to a structure change of the (MoSiTiVZr)Nx high-entropy nitride coatings from amorphous to single FCC. Meanwhile, the grain size, hardness, damage-tolerance and wear resistance significantly increase. The maximum hardness and Young's modulus of the coating reaches 45.6 GPa and 408.2GPa, respectively at nitrogen content of 53.7 at.%. The corrosion resistance of all the coatings tested are better than that of 304 stainless steel. At 53.7 at.% N, the corrosion resistance of the coating is slightly inferior than that the control group mainly due to increase of grain size and loose structure. The residual Mo in the coating has a positive effect on the electron transport during the corrosion process.

Keywords: high-entropy, nitride, coatings

Prof. Sam Zhang

- Principal Editor for Journal of Materials Research (USA) (since 2003).
- Founding and current president of "Thin Films Society" (www.thinfilms.sg) since 2009

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Personal Information:

Professor Sam Zhang Shanyong (張善勇), FRSC, FTFS, FIoMMM, academically known as Sam Zhang, was born and brought up in the famous "City of Mountains" Chongqing, China. He received his Bachelor of Engineering in Materials in 1982 from Northeastern University (Shenyang, China), Master of Engineering in Materials in 1984 from Iron & Steel Research Institute (Beijing, China) and Ph.D. degree in Ceramics in 1991 from The University of Wisconsin-Madison, USA. He was a tenured full professor (since 2006) at the School of Mechanical and Aerospace Engineering, Nanyang Technological University Singapore. January 2018, he joined School of Materials and Energy, Southwest University, China and served as the founding and current director of the Centre for Advanced Thin Films and Devices (http://fmae.swu.edu.cn/s/fmaenew/yjzx/). Since August 2023, as a chair professor, he joined Harbin Institute of Technology, China.

Selected Awards and Honors:

- ✓ Fellow of Royal Society of Chemistry (FRSC) since 2018
- ✓ Fellow of Thin Films Society (FTFS) since 2018
- ✓ Fellow of Institute of Materials, Minerals and Mining (FIoMMM) since 2007

Keynote Session V

Nov. 15, 2023 (Wed) 09:00-09:40

Multifunctional Protective Coatings for Harsh Environments

J. E. Klemberg-Sapieha[†*]

Department of Engineering Physics, Polytechnique Montreal, Montreal, Quebec H3T 1J4, Canada

ABSTRACT

Materials exposed to extremely demanding environments in applications such as aerospace, automotive, mining, petroleum, and consumer products continue to face increased technological, environmental, and economical challenges, especially since the performance of modern equipment, systems, and components is pushed to and beyond their limits. This frequently leads to material deterioration accelerated by excessive wear, erosion, tribo-corrosion, and other mechanisms related to surface damage, resulting in increased operation and maintenance costs, decreased efficiency, premature failure, and compromised safety in the case of critical applications.

Good understanding of materials deterioration processes allows one to develop appropriate strategies to protect technologically relevant substrates taking into account the complete life cycle of the component. Advanced nanostructured coatings call for an “ideal” combination of mechanical, elasto-plastic, tribological, corrosion, thermal, and other characteristics. Such requirements can only be satisfied by using specifically tailored coating architectures while considering nanocomposite, nanolaminate, multilayer, and graded layer systems. Specifically, a combination of multiple coating types obtained by different complementary processes provides much promise for combined functional characteristics including multifunction, adaptive, or smart performance.

Development of new in situ real-time techniques to characterize materials deterioration mechanisms includes examples such as (i) assessment of the progression of solid particle erosion; (ii) stress measurements; (iii) micro-scratch and nano-wear testing to study defect initiation and propagation; and finally, (iv) tribo-corrosion testing to assess the synergistic effects involved in different wear and corrosive environments.

Throughout the talk, we will illustrate the relationships that exist between the microstructure, the mechanical properties, and the tribological performance of protective coatings by presenting different examples. Emphasis will be on (i) material damage caused by solid particle erosion in aeronautical engines (compressor components, heat exchangers, pumps, piping systems); and (ii) mechanical and tribological performance of optical films (e.g., antireflective coatings and optical interference filters) on glass and plastics for their use in touch screens, corrective glasses, low emissivity or smart windows, and others.

Keywords: Multifunctional protective coatings; coatings microstructure; tribological properties; *in situ* real-time characterization.

Prof. J.E. Klemberg-Sapieha

- ICMCTF Board of Directors and Executive Committee of the Advanced Surface Engineering Division of AVS (2011-2013; 2014-2016; 2020- 2022)
- 2017 – 2022 Member of Scientific Committee - Green Surface Engineering for Advanced Manufacturing
- (2015-2021) SVC Board of Directors Society of Vacuum Coaters

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Personal Information:

Since joining Polytechnique Montreal in 1978, she has systematically contributed to the field of plasma processing of materials, coatings and thin films. She has specialized in tailoring and assessing the mechanical, tribological and electrochemical properties, as well as surface and interface characterization using surface spectroscopies and microscopies, in particular XPS and AFM. She has significantly contributed to the development of plasma enhanced chemical vapor deposition (PECVD) processes using the microwave, radiofrequency and dual-mode microwave/radiofrequency approaches leading (in 1980's and 1990's) to pioneering studies and development of gas and vapor permeation barriers and hydrogenated amorphous carbon (a-C:H; DLC) films and coatings with an adjustable hydrogen content.

Since early 2000's, her research focus has shifted toward hard protective coatings for aerospace, biomedical and manufacturing applications. Besides her initial work on durable lubricious and biocompatible coatings for medical implants, she has led studies on the development of superhard nanocomposite coatings for the protection of aircraft engine components against solid particle erosion. Highlight of her pioneering work is the achievement of the probably highest reported improvement of the erosion resistance by a factor of 70 compared to the underlying metal components of the engine's compressor. More recent studies led by Klemberg-Sapieha are focused on the development of multifunctional coatings for aerospace applications while tailoring their erosion resistance, tribo-corrosion resistance, electrical conductivity and ice-phobicity. An integral part of these significant contributions is the development of methodologies for in situ real time testing of the wear resistance (the "Nanowear" test), scratch resistance (the "Tribtik" test), solid particle erosion, the tribocorrosion test and the ice-accretion test. The main significance and impact of such characterization approaches is the possibility to assess the underlying materials deterioration mechanisms, the understanding of which is the background of further progress in surface engineering in the context of future sustainable solutions in the fields such as energy, transport, manufacturing, and well as wearable electronics and others.

Selected Awards and Honors:

- ✓ 2022/05 F. Bunshah Award and Honorary ICMCTF
- ✓ 2020/10 Fellow of American Vacuum Society, AVS Fellowship
- ✓ 2020/6 Synergy Award for Innovation
- ✓ 2012 – 2022 Principal collaborator of the NSERC Industrial Research Chair
- ✓ 2009/4 Society of Vacuum Coaters, SVC, Mentor Award

Keynote Session VI

Nov. 15, 2023 (Wed) 09:40-10:20

AI-Enhanced Sensors and Applications from AIoT to Metaverse

Chengkuo Lee[12†*]

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[2]Center for Intelligent Sensors and MEMS, National University of Singapore, Singapore

ABSTRACT

Having ChatGPT, Metaverse and many new business and services, we have witnessed the rapid progress and impact made by artificial intelligence (AI) technology. Driven by the great progress in sensing materials and technologies, various sensors with the aids of could and edge computing provide cost-effective approaches for a wide range of monitoring applications toward the realization of smart homes, personal healthcare, and metaverse. Functional thin films and surface phenomena have been investigated as versatile sensing mechanisms and devices. Integration of micro-scale energy harvesting mechanisms and nanogenerators with sensors provides self-powered and/or self-sustained internet of things (IoT) sensing technology which realize the ubiquitous sensor networks for enabling the sensory information analyzed by deep learning mechanisms at cloud servers. It is known as the artificial intelligence of things (AIoT) technology. Leveraging the AIoT technology, AI-enhanced Sensors or AI Sensors become the new category of sensors which provide more in-depth information than the regular amplitude or intensity outputs in response to ambient stimuli. In this talk, advances in the plasmonic nanoantennas (PNAs) modified graphene photodetector[1-2], nanofluidics-based lab-on-chip (LoC)[3], and machine learning enabled mid-infrared spectroscopy[4] are discussed. Then the recent progress in self-powered sensors will be highlighted with applications including healthcare, robotic and gaming interfaces, smart home and metaverse[5-7]. To demonstrate the advanced self-sustained AIoT technology, a walking stick powered by ultralow-frequency human motion with sensing features to provide a healthcare monitoring platform for motion-impaired users is introduced[8]. Secondly, an intelligent piezoelectric AIoT node comprising an integrated self-powered piezoelectric sensing and energy harvesting module with continuous power supply from ambient vibrations over a wide frequency range is developed with record-high output power density[9]. The future of self-powered sensors and AI sensors along with the AIoT technology will provide new solutions to the applications from smart home and city to the virtual world, i.e., metaverse.

Keywords: AI Sensor, AIoT, Graphene, Piezoelectric, Triboelectric,

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Prof. Chengkuo Lee

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Dr. Chengkuo Lee received his Ph.D. degree in precision engineering from The University of Tokyo, Tokyo, Japan, in 1996. Currently, he is the GlobalFoundries Chair professor in Engineering, and director of *Center for Intelligent Sensors and MEMS* at National University of Singapore, Singapore. He cofounded Asia Pacific Microsystems, Inc. (APM) in 2001, where he was Vice President of R&D from 2001 to 2005. From 2006 to 2009, he was a Senior Member of the Technical Staff at the Institute of Microelectronics (IME), A-STAR, Singapore. His research interests include MEMS, NEMS and flexible devices for IoT, energy harvesting, metamaterials and biomedical applications. He has trained 30+ PhD students graduated from ECE Dept., NUS. He has co-authored 450+ journal articles and 360+ conference papers. He holds 10 US patents. His google scholar citation is more than 27000. He is the associate editor-in-chief of Trans. Nanotechnology (IEEE), and editor-in-chief of Intern. J. Optomechatronics (Taylor & Francis). He is in the Executive Editor Board of J Micromechanics and Microeng. (IOP, UK). He is the Associate editor of J. MEMS (IEEE), Chip (Elsevier), and Internet of Things (Elsevier). He is also the Editor of next journals: Scientific Reports (Springer Nature), Bioelectronic Medicine (BMC, Springer Nature), CHIP (Elsevier), J. Optical Microsystems (SPIE), Journal of Sensors (Hindawi), Sensors (MDPI), and Micromachines (MDPI). He serves on steering committee and technical program committee for various conferences such as Transducers 2015, IEEE MEMS 2015, IEEE NEMS 2015, IEEE SENSORS 2018, IEEE MEMS 2019, Transducers 2019, IEEE MEMS 2020, and Transducers 2021, etc. He has also chaired many conferences including IEEE NEMS'18, OMN '16 and '14, ISMM'14, and Bio4Apps'13 etc.

Selected Awards and Honors:

- ✓ Publications: International Journal Articles & Letters (133); US Patents (9); Taiwan Patents (26); International Conference Papers & Extended Abstracts (186).
- ✓ The average ISI citation number per published paper is more than 8.
- ✓ H-index : 15
- ✓ Member of editorial advisory board, Sensors and Materials, from 2019 to now

Short Course (I)

November 12, 2023, 9:00 - 12:00

Reactive Sputtering

Lecturer: Prof. Diederik Depla

Department of Solid State Sciences, Ghent University, Belgium

Content:

Course Objectives

- Understand the fundamental processes driving (reactive) magnetron sputtering
- Develop strategies for dedicated experiments to unravel the complexity of reactive magnetron sputtering
- To get a good overview of the current literature and modelling techniques

Course Description

Reactive magnetron sputter deposition is a mature technique often used in laboratories and at industrial level to grow compound thin films. The growth of these films is defined by the deposition conditions, and therefore a good knowledge of the deposition process is essential to tune the growth and as such the film properties.

After a short introduction on the physics of sputtering, the magnetron discharge and the transport of sputtered atoms through the gas phase, the course starts with a few definitions regarding reactive sputtering to show that the processes driving this technique are general applicable. This introduction assists the attendee to the next step : the description of the most common experiment during reactive magnetron sputtering, the hysteresis experiment. The simplicity of this experiment fools initially the scientist because it hides a complex interplay between different processes that define the actual outcome of the experiment. During the course, the details of this experiment are analyzed, and modelling is used to guide the attendee. In this way, the attendee will gain knowledge in a wealth of important process controlling the film growth. A good knowledge of these processes will arm the attendee to analyze and to control the reactive sputtering process.

Course content

- Sputtering: physics of sputtering, and transport of sputtered atoms
- Magnetron discharges: typical features, electron emission, excitation and ionization
- Hysteresis experiments: what can we learn from this “simple” experiment ?
- Understanding this experiment by modelling

Short Course (I) Lecturer

Prof. D. Depla has received his Master Degree in Chemistry in 1991 at Ghent University, Belgium. In 1996 he promoted with a PhD thesis in Solid State Chemistry on spray drying of precursors for superconductors. After a short period as senior scientist in the Department of Solid State Sciences, he became in 1999 Professor at the same department. His research focuses on the fundamental aspects of reactive magnetron sputter deposition. He has shown the importance of ion implantation on this process, and explained the discharge voltage behavior during reactive sputter deposition. In this way, his continuous research in this area resulted in several publications. He is now as full professor head of the research group "Dedicated Research on Advanced Films and Targets" (DRAFT). More details can be found on www.draft.ugent.be. D. Depla is Belgian representative of the IUVSTA, and secretary of the thin film division of this organization, and president of the Belgian Vacuum Society.

The film community, and the physical vapor deposition community in particular, is dominated by application driven research aiming to discover new materials and new methods to enhance the production capacity. Under the guidance of D. Depla, the research group has distinguished itself from this rather technological approach, and has set an own course seeking for answers on fundamental questions related to film growth and process control. Although this approach could lead to intractability, D. Depla has an open mind to answer these questions in an alternative manner which forms an important dynamic in the research group which currently consists of 3 PhD students (1 preparing his PhD thesis). The unique approach of the research group to tackle these fundamental questions, has propelled the research group to the forefront of the thin film community and we are today recognized as one of the world leading groups in reactive sputtering. A simple "google.com" search on "reactive sputter deposition" immediately shows a few links to the research group or the PI. The American Vacuum Society recently acknowledged the work of D. Depla through the "Bill Sproul Award 2022" for his persistence to unravel the fundamental processes during reactive magnetron sputter deposition.

Short Course (II)

November 14, 2023, 13:30 - 15:40

Material Informatics toward 5G/6G from Machine Learning (This session will be held in Chinese)

Lecturers:

Prof. Kao-Shuo Chang
Department of Materials Science and Engineering, National Cheng Kung University

Prof. Yen-Hsun Su
Department of Materials Science and Engineering, National Cheng Kung University

Content:

The artificial intelligence shows a machine intelligence, refers to the intelligence displayed by machines made by humans. Machine learning is a branch of artificial intelligence. In the past 30 years, machine learning has developed into a multi-field interdisciplinary integration, involving multiple disciplines such as probability theory, statistics, approximation theory, convex analysis, and computational complexity theory. The complex physical and chemical properties of advanced materials can be adjusted accordingly for different application needs, and can change during synthesis, production and use. The machine learning of material informatics is to halve the research and development cycle of new materials and reduce the cost to a fraction of the current price, such as the research and development of 5G/6G materials.

Short Course (II) Lecturers

Prof. Kao-Shuo Chang received his Ph.D. degree from the University of Maryland, College Park, MD USA. His research focuses on the exploration of functional nano-structured materials, including the following six fields: **(1)** low-k materials for 5G and 6G application, **(2)** piezophotocatalysis, **(3)** high-entropy high-k oxide films, **(4)** high-entropy piezoelectric films, **(5)** combinatorial (high throughput) physical and hydrothermal synthesis, and **(6)** electronic devices (MOS, MOSFET, TFT, and FinFET). Prof. Chang has conducted 6 joint projects in recent years and now is a PI of the government support joint project of AI-assisted High Throughput Exploration of Novel Dielectrics for Beyond 5G and 6G Wireless Telecommunication and Automotive Radar. He published more than 70 SCI papers with an h-index of 20. He delivered more than 20 invited talks at various international conferences and serves as a reviewer constantly for various SCI journals. He was guest editors for the journals of "Surface and Coatings Technology (SCT)" and "Thin Solid Films" and is currently a managing guest editor for the SCT in 2023. He also organized/coorganized more than 20 conferences. He was a general secretary of the Taiwan Association Coatings and Thin Films Technology (TACT) and now is a council member at TACT.

Prof. Yen-Hsun Su received his Ph.D. degree from the National Cheng Kung University. His research focuses on the exploration of functional materials form theory to device, including the following six fields: luminous plants, plant materials, energy conversion materials, carbon-negative materials, machine learning, lithium-ion batteries, supercapacitors, first-principle computing materials, high-entropy materials, and carbon sink research.

Prof. Su has conducted 8 joint projects in recent years and once is a PI of the government support joint project of research on the high-efficiency resonance energy transfer of plant-like antenna pigments to the performance gain of semiconductor photoelectric conversion elements in smart bionic materials and digital design platform. He published more than 105 SCI papers with an h-index of 19. He is associate editor for the journal of "Optical and Quantum Electronics". His works were selected as 14 cover stories in SCI journals.

TACT 2023 Invited Speakers

Symposium A. Coatings for sustainable energy

Prof. Tsan-Yao Chen

Department of Engineering and System Science, National Tsing Hua University, Taiwan

Topic: Local collaboration between oxygen vacancy and active site in atomic metal oxide clusters with outstanding oxygen reduction activity

Prof. Kuan-Wen Wang

Institute of Materials Science and Engineering, National Central University, Taiwan

Topic: Innovative (100) Surface Configuration Enhances Oxygen Reduction Performance of Pt_3Co Nanodendrite Catalysts

Prof. Yu-Ching Huang

Department of Materials Engineering, Ming Chi University of Technology, Taiwan

Topic: Towards Highly Efficient 4-Terminal Perovskite/Si Tandem Solar Cell

Prof. Chieh-Ting Lin

Department of Chemical Engineering, National Chung Hsing University, Taiwan

Topic: Enhancing the Reproducibility of Self-Assembled Monolayer-Based Perovskite Solar Cells by Interface Engineering at the Buried Interface

Prof. Po-Chun Chen

Institute of Materials Science and Engineering, National Taipei University of Technology, Taiwan

Topic: Iridium Oxide Based Thin Film as an Electrode of Bio-Interface Applications

Prof. Meng-Lin Tsai

Department of Materials Science and Engineering, National Taiwan University of Science and Technology, Taiwan

Topic: Halide Perovskite/Cellulose Nanocrystal Films for High Stability Optoelectronic Applications

Prof. Cheng-Ying Chen

Department of Optoelectronics and Materials Technology, National Taiwan Ocean University, Taiwan

Topic: Nontoxic/Earth-abundant Metal Chalcogenide Materials for Solar Cell applications: $Cu_2ZnSn(S,Se)_4$ and $Cu_2BaSn(S,Se)_4$

Prof. Pai-Chun Wei

Department of Materials Science and Engineering, National Cheng Kung University, Taiwan

Topic: Strong lattice anharmonicity of organic-inorganic hybrid perovskites

Prof. Kuei-Hsien Chen

Advanced Materials and Surface Science, Institute of Atomic and Molecular Sciences (IAMS), Taiwan

Topic: Tailoring metal dichalcogenides semiconductors for sustainable CO_2 conversion

Prof. Mutsumi Sugiyama

Faculty of Science and Technology, Department of Electrical Engineering, Tokyo University of Science, Japan

Topic: Fabrication of visible-light-transparent devices using NiO thin films

Prof. Jun Maruyama

Osaka Research Institute of Industrial Science and Technology, Japan

Topic: Nano-etching and Fe–N–C thin film coating on carbon surface for enhancement of oxygen evolution reaction

Prof. Yu-Sheng Su

International College of Semiconductor Technology, National Yang Ming Chiao Tung University, Taiwan

Topic: Enhancing Stability and Performance of Lithium Metal Anodes in Rechargeable Batteries: A Protective Composite Coating as an Artificial SEI Layer

Prof. Sheng-Heng Chung

Department of Materials Science and Engineering, National Cheng Kung University, Taiwan

Topic: Metal/Sulfur Energy-storage Materials for High-energy-density Batteries

Prof. Tsu-Chin Chou

Institute of Analytical and Environmental Sciences, National Tsing Hua University, Taiwan

Topic: Preparation of $CuxPd_{1-x}$ Solid Solution Catalysts by Using Electrochemical Pulse Deposition for Electrochemical CO_2 Reduction to Ethanol

Prof. Ming-Hsien Li

Department of Applied Materials and Optoelectronic Engineering, National Chi Nan University, Taiwan

Topic: Effect of crown ether additive in doctor-bladed perovskite solar cells

Prof. Yu-Lin Kuo

Department of Mechanical Engineering, National Taiwan University of Science and Engineering, Taiwan

Topic: Electrical performance improvement of large-area anode-supported solid oxide fuel cell by incorporating GDC diffusion barrier layer via atmospheric-pressure plasma jet

Prof. Jin-Hyo Boo

President of the Korean Vacuum Society

Department of Chemistry, Sungkyunkwan University, Korea

Topic: Development of New Working Electrodes for Enhancing Power Conversion Efficiencies of both Perovskite and Dye-sensitized Solar Cells

Symposium B. Nanostructured and nanocomposite coatings

Prof. Sven Ulrich

Karlsruhe Institute of Technology, Germany

Topic: Development of carbon-based nanocomposites by means of HiPIMS: through nanoscale constitution and microstructure to adjustable mechanical and tribological properties

Prof. Hailin Sun

Technical director; Company Board member

Teer Coatings Ltd, UK

Topic: Aging effects on Antimicrobial Properties with Nano-Cluster-Doped Low Friction Amorphous Carbon Coatings for Space Applications

Prof. Pei-Chen Su

School of Mechanical and Aerospace Engineering, Nanyang Technological University, Singapore

Topic: Nanoparticle Additives for 4D Printed Parts with Improved Dimensional Accuracy

Prof. Yoon Yongjin

Department of Mechanical Engineering, Korea Advanced Institute of Science and Technology (KAIST), Korea

Topic: SOFC for Enhancing Time of Flight of Drone Operation with ALD thin film coating

Prof. Chih Chen

Department of Materials Science and Engineering, National Yang Ming Chiao Tung University, Taiwan

Topic: Low contact resistivity Cu/SiO_2 hybrid bonding using (111)-oriented nanotwinned Cu

Prof. Grzegorz Greczynski

Department of Physics, Chemistry and Biology (IFM), Linköping University, Sweden

Topic: Benefits of metal-ion irradiation for nanostructure and phase control during thin film growth by magnetron sputtering

Symposium C. Semiconductor, optoelectronic and flexible device films

Prof. Vincent Tung

Department of Chemical System Engineering, The University of Tokyo, Japan

Topic: Wafer-scale Epitaxy Growth of 2D Semiconducting Films with Continuous Single Crystallinity

Prof. Bui Nguyen Quoc Trinh

Vietnam National University, Hanoi, Vietnam Japan University, Faculty of Advanced Technology and Engineering, Nanotechnology Program, Hanoi, Vietnam

Topic: Cupric Oxide Based Thin Films: Simulation, Experiment and Application Approaches

Prof. Akihiko Fujiwara

Kwansei Gakuin University, Japan

Topic: Effect of Absorption/Desorption of Oxygen on Thin-Film Transistor Performance

Prof. Nobuhiro Matsusita

Tokyo Institute of Technology, Japan

Topic: Functional Oxide Films Fabricated On Flexible Substrate By Wet Process -Ferrite, ZnO And Cu_2O Films By Spin-Spray Method

Prof. Nguyen Ngoc Dinh

Physics, HUS, Vietnam National University, Hanoi, Vietnam

Topic: 3D bio-printing of blood vessel-like structures using umbilical cord stem cells

Prof. Ludvik Martinu

Department of Engineering Physics, Polytechnique Montreal, Montreal, Canada

Topic: Multifunctional optical coatings for flexible substrates

Prof. Heeyeop Chae

Vice President the Korean Vacuum Society School of Chemical Engineering, Sungkyunkwan University

School of Chemical Engineering, Sungkyunkwan University

Topic: Low Global Warming Gases for Plasma Etching Processe

Symposium D. Tribological and protective coatings

Prof. Ivan Petrov

Materials Science Department, University of Illinois, Urbana, Illinois, USA

Department of Physics (IFM), Linköping University, Sweden

Topic: Control of Composition, Microstructure, and Properties of Sputter-Deposited Transition Metal Diborides

Prof. Yu-Lin Kuo

Department of Mechanical Engineering, Natioal Taiwan University of Science and Engineering, Taiwan

Topic: Recent Advances of Atmospheric Pressure Plasma Nitriding for Surface Hardening on Metals

Prof. Lung-Hao Hu

Department of Mechanical and Electro-Mechanical Engineering, National Sun Yat-Sen University, Taiwan

Topic: Mechanical and Electrochemical Properties of Polymer derived Silicon Oxycarbonitride ceramic film by Preceramic Polysilazane Precursor Coating

Prof. Ralf Bandorf

Fraunhofer Institute for Surface Engineering and Thin Films IST

Optical systems and applications OSA, Head of Group, Optical and electrical Systems OES

Distinguished Chair Professor, Feng Chia University, Taiwan

Topic: Industrial scale reactive HIPIMS - applications and active control

Prof. Shuo Yin

Department of Mechanical, Manufacturing and Biomedical Engineering, Trinity College Dublin, The University of Dublin, Ireland

Topic: Microstructure and tribological properties of cold sparyed CoCrFeNiMo$_x$ high entropy alloy coatings

Prof. Chien Chon Chen

Department of Energy Engineering, National United University, Taiwan

Topic: Hard Coating on Refillable Solid State Hydrogen Storage Chamber

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Symposium E. Organic and biological coatings

Prof. Han-Cheol Choe

College of Dentistry, Chosun University, Korea

Topic: Functional Surface Modification for Dental Implant

Prof. Peng Chen

Liaison Center for Innovative Dentistry, Tohoku University, Japan

Topic: Improve the Osteoconductivity and Antibacterial Properties of Metallic Dental Implants through Smart Surface Designing

Prof. Yusuke Tsutsumi

Research Center for Structural Materials, National Institute for Materials Science (NIMS), Japan

Topic: Development of multi-biofunctionalized titanium surface by two-step micro-arc oxidation

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Symposium F. Metallic and high-entropy alloy coatings

Prof. Erik Lewin

Department of Chemistry - Ångström Laboratory, Uppsala University, Sweden

Topic: Multi-component and high-entropy materials – bonding, disorder and possibilities

Prof. Junko Hieda

Graduate School of Engineering, Nagoya University, Japan

Topic: Development of titanium-magnesium alloy films for biomedical applications

Prof. Yi-Chia Chou

National Taiwan University, Taiwan

Topic: Investigation of Superior Properties of High Entropy Alloys using Transmission Electron Microscopy and Possible Medical Application

TACT 2023 Technical Symposia

Symposium A. Coatings for sustainable energy

The rational design of materials and improvement of their physical and chemical properties play a key role in enabling the renewable and sustainable energy technologies. This symposium focuses on the new progresses in materials for renewable and sustainable fuel production as well as energy saving, storage and conversion. Topics will include but not limited to:

- Batteries
- Supercapacitors
- Fuel cells
- Photovoltaics and solar cells
- Hydrogen production and fuel generation
- Hydrogen storage
- Thermoelectrics
- Novel illumination sources for lighting
- Plasma technology

Symposium B. Nanostructured and nanocomposite coatings

To render thin films with extraordinary properties such as electronic, optical, magnetic, thermal or mechanical properties, novel structure into nanoscale design as nanostructured and nanocomposite coatings is often demanded. The nanostructured and nanocomposite coatings are considered to consist of various components in the structure with at least one feature size in the nanosize region such as a matrix and an embedded nanocrystalline phase. This session will concentrate on synthesis, structure design, properties, and applications of such nanocomposite films (thin or thick) for protection or for functional applications, stand-alone or as coatings.

Symposium C. Semiconductor, optoelectronic and flexible device films

This session aims to provide a discussion forum for the fundamental material investigations and applications of semiconductor and optoelectronic films. Technical topics will cover, but not limited to, processing techniques, material characteristics analysis, device properties, etc... In the applications, research laboratories, academic institutes and vendors are welcome to submit papers on MEMS, consumer electronics, biomedical devices, optical devices and portable electronics.

Symposium D. Tribological and protective coatings

This symposium focused on materials science and engineering of thin film and thick coatings for tribological and protective applications. All aspects concerning tribology, friction and wear, adhesion, corrosion, hardness, oxidation and related mechanical properties of coatings and engineered surfaces are within the symposium scope. Papers working on materials advances,

structural design, fabrication, modeling, fracture mechanics, failure analysis, as well as developed mechanical property characterization, for tribological and protective layers fabricated by versatile processes, including but not limited to PVD, CVD, electrochemical deposition, cold spray, and thermal spray, are of interest. Contributions on protective layers against extreme environments, nanocomposite films with multifunction, nanostructured coatings for advanced automotive, aerospace, and machining applications, are solicited. Abstracts concerning manufacture, structural analysis, mechanical performance and characterization of tribological coatings and engineered surface are also welcome.

Symposium E. Organic and biological coatings

This session aims to provide a discussion forum for biomimetic organic hybrid coatings used for replacement and repair of biomedical devices, including certain types of metal, glass ceramic, and polymer materials. Furthermore, advanced organic and biological coatings applied in bioelectronics, biosensors, or tissue engineering are also important topics. The symposium provides a platform for becoming its renowned unsurpassed networking and relationship-building opportunities by presenting and discussing the following contemporary topics, but not limited to: (1) organic materials and devices coatings; (2) self-assembly hybrid materials coatings; (3) biointerfaces; (4) bioelectronics and biosensors; (5) electrospinning coatings; (6) plasma treatment.

Symposium F. Metallic and high-entropy alloy coatings

Symposium F provides a discussion and networking platform for the fundamental investigations, latest developments and potential applications of metallic coatings that include pure metals, metallic alloys, high-entropy alloys, metallic glasses, etc. Among these metallic materials, the design concept of high-entropy alloys and metallic glasses allows compositions beyond the scope of traditional alloys, particularly offering unprecedented properties and opportunities for a wide range of applications. Technical topics include, but are not limited to, the processing methods, theory and modeling, characterizations, measurement techniques, properties and deformation mechanisms of metallic coatings. Scientists, engineers and students with interest in the development of metallic coatings for applications to the fields of aerospace, surface engineering, micro-and-optoelectronics, MEMS/NEMS, biomedical, etc., are all welcome to attend.

Symposium G. Topical Symposium: theory, simulation, and modeling; quantitative surface analysis

Theory, simulation, and modeling of materials are crucial in providing insight into advanced properties and processes in the fields of science and engineering. Materials can be simulated ranging in size widely from the atomic to the macroscopic scale. Continuously developing new theories and modeling are required to obtain promising results. Quantitative Surface Analysis is a special method that allows for a quantitative analysis of a particular system. More specialized work about the characterization technique may extend its scope to systems of interest.

TACT 2023 Presentation Guidelines

Oral Presentation Guidelines

The speakers need to come to the Session Room 15 minutes before the scheduled session time. The speakers are encouraged to bring their own laptop (with Microsoft Windows or MAC iOS), and a suitable AC adapter, for the presentation. Output with DVI is not available, so the speakers are requested to bring a VGA or a HDMI adaptor if necessary. Screensaver and energy saving settings should be disabled.

The speakers can also use the PC prepared in the Session Room as well. The PC will be equipped with Microsoft Windows and PowerPoint. The speakers need to save the file of their presentation in a USB memory and upload the file to the PC in the Session Room at least 15 minutes before the scheduled session time.

Plenary lecture: allotted time 50 minutes (45 minutes for presentation and 5 minutes for Q&A)
Keynote speech: allotted time 40 minutes (35 minutes for presentation and 5 minutes for Q&A)
Invited talks: allotted time 20 minutes (17 minutes for presentation and 3 minutes for Q&A)
Regular talks: allotted time 15 minutes (12 minutes for presentation and 3 minutes for Q&A)

Poster Presentation Guidelines

Poster presenters are requested to put up their posters on the day of their presentation (November 13 or 14), preferably by 13:30. Presenters are required to stand near their poster from 17:00-18:30 on November 13 (Poster Session I) & 16:00-17:30 on November 14 (Poster Session II). Posters must be removed after the closing time by their respective presenters. The provided poster boards measure 2.1 m in height and 0.9 m in width. Posters are suggested to be A0 size in portrait orientation (841 x 1189 mm). Tapes will be provided to attach your posters to the boards.

TACT 2023 Student Awards

The TACT 2023 Student Awards are to honor and encourage outstanding students carrying out research in areas related to thin film and coating technologies. TACT aims to recognize excellent students who show great promise for future achievement.

Oral Presentation:

- Please check the program schedule of the Student Awards semi-final - Oral presentation and the presentation guildline for details.
- Time: Monday, November 13, 2023
- In order to keep the program schedule on time, we remind you to prepare and upload the slides of your presentation before the beginning of the session and give the oral presentation for the Oral Presentation Award. The Oral Presentation Award Committee will review and select the top three presenters from all the semi-finalists for the awards of **TACT 2023 Gold, Silver, and Bronze Student Awards**.
- The top non-native English presenter from the remaining semi-finalist in each Symposium will be awarded with a **RSC Applied Interfaces Special Award provided by the RSC**.

Poster Presentation:

- Please check the program schedule of the poster presentation and the presentation guildline for details.
- Poster Session I (17:00-18:30, Monday, November 13, 2023.)
  Posters assembled before 13:30.
  Authors present for discussion and questions at 17:00-18:30.
- Poster Session II (16:00-17:30, Tuesday, November 14, 2023.)
  Posters assembled before 13:30.
  Authors present for discussion and questions at 16:00-17:30.
- All the presenters of semifinals are to attend the TACT 2023 conference and to give the POSTER presentation on site and on time for the Poster Presentation Award. The Poster Presentation Award Committee will review the presentations during the conference. Each symposium then selects best presenters from the semi-finalists for the **Best Poster Award** (US$150 and an honored certificate).
- Each symposium also selects the top remaining semi-finalists to be honored with a **Certificate of Excellence**. In addition, several **TACT 2023 Certificates of Best Poster Popularity Award** will be granted.

TACT 2023 Program Overview

Date Time	Nov. 12, 2023 (Sun)	Nov. 13, 2023 (Mon)	Nov. 14, 2023 (Tue)	Nov. 15, 2023 (Wed)
09:00 ~ 12:00	• Registration • Short Course (I)	• Registration • Keynote Session (II) • Keynote Session (III) • Oral Session (II) • Exhibition	• Registration • Plenary Session (II) • Keynote Session (IV) • Oral Session (V) • Exhibition	• Registration • Keynote Session (V) • Keynote Session (VI) • Exhibition • Closing
12:00 ~ 13:30	Lunch		Lunch • NSTC Project PI Meeting • TACT Member Meeting	Lunch
13:30 ~ 18:00	• Registration • Opening • Plenary Session (I) • Keynote Session (I) • Oral Session (I) • Exhibition	• Registration • Oral Session (III) • Oral Session (IV) • Poster Session (I) • Exhibition	• Registration • Short Course (II) • Oral Session (VI) • Poster Session (II) • Exhibition	• Conference Tour
18:00 ~ 20:30	• Welcome Reception		• Banquet*	

*Banquet Hall, B2F, THE HOWARD PLAZA HOTEL TAIPEI (#160, Ren-Ai Rd., Sec.3, Taipei,)

TACT 2023 Program Overview

Sunday, November 12, 2023	
09:00~17:00	Registration
09:00~12:00	Short Course (I)
13:30~18:00	Company Exhibition
13:30~14:00	Opening
14:00~14:50	Plenary Session (I): Prof. Frans A. Spaepen
14:50~15:30	Keynote Session (I): Prof. Diederik Depla
15:30~15:50	Break
15:50~17:30	Oral Session (I)
18:00~20:00	Welcome Reception

Monday, November 13, 2023	
09:00~18:00	Registration
09:00~18:00	Company Exhibition
09:00~09:40	Keynote Session (II): Prof. Samir Aouadi
09:40~10:20	Keynote Session (III): Prof. Jyh-Wei Lee
10:20~10:40	Break
10:40~12:00	Oral Session (II)
12:00~13:30	Lunch
13:30~15:10	Oral Session (III)
15:10~15:30	Break
15:30~17:00	Oral Session (IV)
17:00~18:30	Poster Session (I)

Tuesday, November 14, 2023		
09:00~18:00	Registration	
09:00~17:00	Company Exhibition	
09:00~09:50	Plenary Session (II): Prof. King-Ning Tu	
09:50~10:30	Keynote Session (IV): Prof. Sam Zhang	
10:30~10:50	Break	
10:50~12:00	Oral Session (V)	
12:00~13:00	NSTC Project PI Meeting (國科會學門計畫主持人會議) for Taiwanese professors	
13:00~13:30	TACT Member Meeting (台灣鍍膜科技協會會員大會)	
12:00~13:30	Lunch	
13:30~15:40	Oral Session (VI)	Short Course (II)
15:40~16:00	Break	
16:00~17:30	Poster Session (II)	
18:00~20:30	Banquet	

Wednesday, November 15, 2023	
09:00~11:30	Registration
09:00~11:30	Company Exhibition
09:00~09:40	Keynote Session (V): Prof. Jolanta Klemberg-Sapieha
09:40~10:20	Keynote Session (VI): Prof. Chengkuo Lee
10:20~10:40	Break
10:40	Closing, Student Awards, and Raffle Draw

TACT 2023 Oral Program (arranged by Day)

Sunday, November 12, 2023	
09:00-17:00	Registration
Short Course (I) **Conference Room: R204**	
9:00-12:00	Topic: Reactive Sputtering Prof. **Diederik Depla** Department of Solid State Sciences, Ghent University, Belgium
12:00-13:30	Lunch
13:30-18:00	Company Exhibition
Conference Room: Lecture Hall	
13:30-14:00	**Opening** President of TACT (Prof. **Fu-Hsing Lu**) President of National Taipei University of Technology (Prof. **Sea-Fue Wang)**
Plenary Session (I) Chair: Prof. Li-Chyong Chen	
14:00-14:50	**Plenary Session (I)** Topic: Observing dislocations during epitaxial growth of colloidal crystals **Prof. Frans A. Spaepen** School of Engineering and Applied Sciences, Harvard University, USA
Keynote Session (I) Chair: Prof. Jinn P. Chu	
14:50-15:30	**Keynote Session (I)** Topic: Negative ion bombardment: how research and literature allows quantification **Prof. Diederik Depla** Department of Solid State Sciences, Ghent University, Belgium
15:30-15:50	Break
15:50-17:40	Oral Session (I)
18:00-20:00	Welcome Reception

Symposium A. Coatings for Sustainable Energy

Conference Room: R204

Session A1. Chairs:
Prof. Yu-Lin Kuo, National Taiwan University of Science and Technology, TAIWAN
Prof. Sheng-Heng Chung, National Cheng Kung University, TAIWAN

15:50-16:10	A-I-0387 Electrical performance improvement of large-area anode-supported solid oxide fuel cell by incorporating GDC diffusion barrier layer via atmospheric-pressure plasma jet **Yu-Lin Kuo**[1,2,*], Ling Lee[1], Yen-Chieh Huang[1,3] [1]Department of Mechanical Engineering, National Taiwan University of Science and Technology, Taipei 106335, TAIWAN [2]Sustainable Energy Development Center, National Taiwan University of Science and Technology, Taipei 106335, TAIWAN [3]Leatec Fine Ceramics Co,. Ltd., Taoyuan City 324, TAIWAN
16:10-16:30	A-I-0057 Metal/Sulfur Energy-storage Materials for High-energy-density Batteries **Sheng-Heng Chung**[†*], Chui-Yi Kung, Cun-Sheng Cheng Department of Materials Science and Engineering, National Cheng Kung University, Tainan, TAIWAN
16:30-16:50	A-I-0401 Strong lattice anharmonicity of organic-inorganic hybrid perovskites **Pai-Chun Wei**[*] Department of Materials Science and Engineering, National Chen Kung University, Tainan, TAIWAN
16:50-17:05	A-O-0332 Disordered Rocksalt-Type High Entropy Oxide Cathode in Li-Ion Battery **Saputro**[1†], Nguyen[1], Patra[2,3], Chang[2,3], Ting[1*] [1]Department of Materials Science and Engineering, National Cheng Kung University, TAIWAN [2]Hierarchical Green-Energy Materials (Hi-GEM) Research Center, National Cheng Kung University, Tainan, TAIWAN [3]Department of Materials Science and Engineering, National Yang-Ming Chiao Tung University, TAIWAN
17:05-17:20	A-O-0177 An Effective Method Derived from Metal-Organic Framework for Electrode Modification on Vanadium Redox Flow Battery **Yun-Ting Ou**[†], Daniel Manaye Kabtamu[*], Chen-Hao Wang[*] Department of Materials Science and Engineering, National Taiwan University of Science and Technology, Taipei, TAIWAN

17:20-17:40	A-I-0326 Enhancing Stability and Performance of Lithium Metal Anodes in Rechargeable Batteries: A Protective Composite Coating as an Artificial SEI Layer **Yu-Sheng Su**[†*], Yue-Sheng Chen International College of Semiconductor Technology, National Yang Ming Chiao Tung University, TAIWAN

Symposium B. Nanostructured and Nanocomposite Coatings

Conference Room: R201

Session B1. Chairs:
Prof. Chuan-Pu Liu, National Cheng Kung University, TAIWAN
Prof. Sven Ulrich, Karlsruhe Institute of Technology, GERMANY

15:50-16:10	B-I-0024 Development of carbon-based nanocomposites by means of HiPIMS: through nanoscale constitution and microstructure to adjustable mechanical and tribological properties **Sven Ulrich**[1†*], Christian Poltorak[1], Andreas Bergmaier[2], Klaus Seemann[1], Michael Thomas Dürrschnabel[1], Hadwig Sternschulte[3], Jakob Grau[3], Jaakko Julin[4], Timo Sajavaara[4], Michael Stüber[1] [1]Karlsruhe Institute of Technology (KIT) - Institute for Applied Materials (IAM-AWP), GERMANY, [2]University of the German Armed Forces Munich, Institute for Applied Physics and Metrology (LRT2), GERMANY [3]Technical University Augsburg, Augsburg, GERMANY [4]RADIATE, FI-40014 University of Jyväskylä, Department of Physics, FINLAND
16:10-16:25	B-O-0128 Changes in Microstructure and Mechanical Properties of ZrCuTi Metallic Glass Films Prepared by Magnetron Sputtering at Different Power **Yu-Huang**[1†], Ting-Fang Zhang, Ming-Tzer Lin[2*] [1]Graduate Institute of Precision Engineering, National Chung Hsing University, Taichung City, TAIWAN [2]Graduate Institute of Precision Engineering, National Chung Hsing University, Taichung City, TAIWAN
16:25-16:40	B-O-0131 Effect of Thickness Ratio on Residual Stress of Cu/W and Cu/Cr Multilayer Thin Films Deposition by HiPIMS **Zhen-Yi Zeng**[1†], Ming-Tzer Lin[2*], Hsiu-Wei Wu [1]Graduate Institute of Precision Engineering, National Chung Hsing University, Taichung City, TAIWAN [2]Graduate Institute of Precision Engineering, National Chung Hsing University, Taichung City, TAIWAN

16:40-16:55	B-O-0148 Mechanical and cutting tool properties of (TiW)N hard coatings deposited by reactive sputtering **Chia-Chin Hsieh**[1†], Shih-Hsun Chen[1*], Shu-Ping Wu[2], Chun-Yao Hsu[2*] [1]Department of Mechanical Engineering, National Yang Ming Chiao Tung University, Hsinchu, TAIWAN [2]Department of Industrial Management, Lunghwa University of Science and Technology, Taoyuan, TAIWAN
16:55-17:10	B-O-0231 Improving thermal shock resistance of AlTiSiN hard coatings using a multilayer architecture **Chung-En Chang**[1†], Zhe-Yu Chang[1], Bao-Yu Chang[1], Yin-Yu Chang[1*] [1]Department of Mechanical and Computer-Aided Engineering, National Formosa University, Yunlin 632, TAIWAN
17:10-17:25	B-O-0316 Preparation of polypyrrole film with various morphology using supercritical carbon dioxide-assisted emulsified electrolyte **Punvinai Vinaisuratern**[1†], Tomoyuki Kurioka[1], Chun-Yi Chen[1], Yoshishige Tsuchiya[2], Tso-Fu Mark Chang[1], Masato Sone[1] [1]Institute of Innovative Research, Tokyo Institute of Technology, JAPAN [2]School of Electronics and Computer Science, University of Southampton, Southampton, SO17 1BJ, BRITISH KINGDOM

Symposium C. Semiconductor, Optoelectronic and Flexible Device Films

Conference Room: Lecture Hall

Session C1. Chairs:
Prof. Ying-Hao Chu, National Tsing Hua University, TAIWAN
Prof. Hsin-Ying Lee, National Cheng Kung University, TAIWAN

15:50-16:10	C-I-0174 FUNCITONAL OXIDE FILMS FABRICATED ON FLEXIBLE SUBSTRATE BY WET PROCESS -Ferrite, ZnO and Cu_2O Films by Spin-Spray Method **Nobuhiro Matsushita**[1†], Hwai-En Lin[2*], Jeong Soo Hong[3*], Ryosuke Nitta[4], Yuta Kubota[1] [1]Department of Materials Science and Engineering, Tokyo Institute of Technology, Tokyo, JAPAN [2]Dept of Mechanical Engineering, National Taipei University of Technology, TAIWAN [3]Department of Electrical Engineering, Gachon University, Gyeonggi-do, KOREA [4]Laboratory for Materials and Structures, Tokyo Institute of Technology, JAPAN
16:10-16:30	C-I-0032 Effect of Absorption/Desorption of Oxygen on Thin-Film Transistor Performance **Akihiko Fujiwara**[†*] School of Engineering, Kwansei Gakuin University, Sanda, JAPAN

16:30-16:45	C-O-0029 Exploring Analog Resistive Switching and Interfacial Effects in InGaZnO-based Resistive Memory Structures for Cognitive Computing Haripriya G. R., Hee Yeon Noh, June-Seo Kim, Myong-Jae Lee, and **Hyeon-Jun Lee**[†*] Division of Nanotechnology, Daegu Gyeongbuk Institute of Science and Technology (DGIST), Daegu 42988, SOUTH KOREA
16:45-17:00	C-O-0087 Epitaxial Growthy of the 2D Bi_2O_2Te Layer **Jen-Hua Chang**[†], Ying-Hao Chu[*] Department of Materials Science & Engineering, National Tsing Hua University, Hsinchu, TAIWAN
17:00-17:15	C-O-0190 Bandgap grading via sputtering and post-selenization using SeS_2 powder enabling $Sb_2(S,Se)_3$ solar cells with 7.1% efficiency Chao-Hsuan Chang, **Yu-Jen Hung**[†], Yi-Cheng Lin[*] Department of Mechatronics Engineering, National Changhua University of Education, Changhua, TAIWAN
17:15-17:30	C-O-0196 The Characterizations on Current Conduction of Al-doped HfO_2 Films Fabricated by Atomic Layer Deposition Sheng-Chi Chen [1,2], **De-Hao Li** [1†], Pak-Man Yiu [1], Pi-Chun Juan [1*], Yen-Ho Chu [3], Liang-Pin Chou [3] and Chung-Lin Huang [3] [1]Department of Materials Engineering and Center for Plasma and Thin Film Technologies, Ming Chi University of Technology, New Taipei, TAIWAN [2]College of Engineering and Center for Green Technology, Chang Gung University, Taoyuan, TAIWAN [3]Nanya Technology Corporation (NTC), New Taipei, TAIWAN

Symposium D. Tribological and Protective Coatings

Conference Room: R202

Session D1. Chairs:
Prof. Fan-Bean Wu, National United University, TAIWAN
Prof. Chau-Chang Chou, National Taiwan Ocean University, TAIWAN

15:50-16:10	D-I-0221 Industrial Scale Reactive HIPIMS - Applications and Active Process Control **R. Bandorf**[1†*], S. Körner[1], H. Gerdes[1], T. Schütte[2] [1]Fraunhofer Institute for Surface Engineering and Thin Films IST, Riedenkamp 2, 38108 Braunschweig, GERMANY [2]PLASUS GmbH, Lechstraße 9, 86415 Mering, GERMANY

16:10-16:25	D-O-0197 Highly-impermeable AlON moisture barrier films deposited by high power impulsed magnetron sputtering Li-Chun Chang[1, 2*], **Sheng-En Lin**[1†], Shang-Feng Tsai[1] [1]Department of Materials Engineering, Ming Chi University of Technology, TAIWAN [2]Center for Plasma and Thin Film Technologies, Ming Chi University of Technology, New Taipei City, TAIWAN
16:25-16:40	D-O-0157 Deposition of diamond-like carbon using high-power pulsed magnetron puttering Hiro Kunieda[1], Shiro Matsumoto[1], Keita Takeda[1], Toru Harigai[2], Akinori Oda[3], Hiroyuki Kousaka[4], **Takayuki Ohta**[1†*] [1]Meijo University, Nagoya, Aichi 468-8502, JAPAN [2]Toyohashi University of Technology, Toyohashi, Aichi 441-8580, JAPAN [3]Chiba Institute of Technology, Narashino, Chiba 275-0016, JAPAN [4]Gifu University, Gifu, Gifu 501-1193, JAPAN
16:40-16:55	D-O-0318 Properties evaluation of TiO_x thin films grown by superimposed HiPIMS and MF system **Shih-Yang Hsu**[1†], Yung-Chin Yang[1], Bih-Show Lou[3.4*], Jyh-Wei Lee[2.5.6.7] [1]Department of Materials and Mineral Resources Engineering, Institute of Materials Science and Engineering, National Taipei University of Technology, Taipei, TAIWAN [2]Department of Materials Engineering, Ming Chi University of Technology, TAIWAN [3]Chemistry Division, Center for General Education, Chang Gung University, TAIWAN [4]Department of Orthopaedic Surgery, New Taipei Municipal TuCheng Hospital, Chang Gung Memorial Hospital, TAIWAN [5]Center for Plasma and Thin Film Technologies, Ming Chi University of Technology, New Taipei, TAIWAN [6]Department of Mechanical Engineering, Chang Gung University, Taoyuan, TAIWAN [7]High Entropy Materials Center, National Tsing Hua University, Hsinchu, TAIWAN
16:55-17:10	D-O-0277 Microstructure and Corrosion Resistance Evaluation of TiWZrB Boride Films **Wei-Xiang Fang** [1†], Bih-Show Lou [2,3], Jyh-Wei Lee [1, 4, 5, 6*] [1]Department of Materials Engineering, Ming Chi University of Technology, TAIWAN [2] Chemistry Division, Center for General Education, Chang Gung University, TAIWAN [3]Department of Orthopaedic Surgery, New Taipei Municipal TuCheng Hospital, Chang Gung Memorial Hospital, TAIWAN [4]Center for Plasma and Thin Film Technologies, Ming Chi University of Technology, New Taipei, TAIWAN [5]Department of Mechanical Engineering, Chang Gung University, Taoyuan, TAIWAN [6]High Entropy Materials Center, National Tsing Hua University, Hsinchu, TAIWAN

Symposium E. Organic and Biological Coatings

Conference Room: R303

Session E1. Chairs:
Prof. Her-Hsiung Huang, National Yang Ming Chiao Tung University, TAIWAN
Prof. Peng Chen, Tohoku University, JAPAN

15:50-16:10	E-I-0136 Improve the Osteoconductivity and Antibacterial Properties of Metallic Dental Implants through Smart Surface Designing **Peng Chen**[†*], Hiroyasu Kanetaka Graduate School of Dentistry, Tohoku University, Japan
16:10-16:25	E-O-0507 Antimicrobial activity of CuO/ZnO hybridized with nano silicate platelets **Yu-Han Chen**[1†], Chung-Wei Lai[2], Tsing-Tang Song[3], Kiyokazu Yasuda[4] and Jenn-Ming Song[1,4*] [1]Department of Materials Science and Engineering, National Chung Hsing University, Taichung, TAIWAN [2]Center for advanced Science and Technology, National Chung Hsing University, Taichung, TAIWAN [3]Material and Chemical Research Laboratories, Industrial Technology Research Institute, Hsinchu, TAIWAN [4]Division of Materials and Manufacturing Science, Osaka University, Osaka, JAPAN
16:25-16:40	E-O-0445 Surface Zwitterionic Modification of Cellulose Hydrogel for Posterior Capsule Opacification Prophylaxis **Cheng-Jui Yang**[†], Tzu-Wei Wang[*] Dept. of Materials Science and Engineering, National Tsing-Hua University, TAIWAN
16:40-16:55	E-O-0508 Surface Modification of Polylactic Acid Nonwoven by a Tailored Acrylic Acid Remote Atmospheric Pressure Plasma for Improving Protein Immobilisation **Wei-Yu Chen**[1,2†*], Teng-Ping Chu[1], Jui-Sheng Lee[2], Ta-Chung An[2], Li-Chun Chang[1], Jyh-Wei Lee[1], Mu-Rong Yang[3], Sepideh Aliasghari[4], Allan Matthews[4] [1]Center for Plasma and Thin Film Technologies, Ming Chi University of Technology, New Taipei City, TAIWAN [2]Department of Raw Materials and Fibers, Taiwan Textile Research Institute, TAIWAN [3]Department of Mechanical and Materials Engineering, Taipei, TAIWAN [4]Henry Royce Institute, Department of Materials, University of Manchester, Manchester, UK
16:55-17:10	E-O-0516 Eel-inspired Slippery Coatings and Their Functions Under Water **L.-W. Deng**[1†], Y.-C. Chung[1,2*] [1]Department of Chemical and Materials Engineering, National University of Kaohsiung, Kaohsiung, TAIWAN [2]Research Center of Biomimetics and Medicare Technology, National University of Kaohsiung, Kaohsiung, TAIWAN
Symposium G. Topical Symposium: Theory, Simulation, and Modeling; Quantitative Surface Analysis	
Conference Room: R205	

Session G1. Chairs: **Prof. Ming-Tzer Lin, National Chung Hsing University, TAIWAN** **Prof. Po-Liang Liu, National Chung Hsing University, TAIWAN**	
15:50-16:05	G-O-0135 First-principle Molecular Dynamics Simulations of the Properties for Boron-doped Diamond-like Carbon **Qiang Yue**[1†], Takayoshi Yokoya[2], Yuji Muraoka[2] [1]Graduate School of Natural Science and Technology, Okayama University, 3-1-1, Tsushima-naka, Tsushima, Kita-ku, Okayama, 700-8530, JAPAN [2]Research Institute for Interdisciplinary Science, Okayama University, 3-1-1, Tsushima-naka, Tsushima, Kita-ku, Okayama, 700-8530, JAPAN
16:05-16:20	G-O-0018 Simulations of Wrinkle Patterns on Thin Films Attached to Compliant Substrates Siavash Nikravesh[1], **Yu-Lin Shen**[1†*] [1]Department of Mechanical Engineering, University of New Mexico, Albuquerque, NM 87131, U.S.A.
16:20-16:35	G-O-0236 Differences in Curing Behavior of Polyurethane Adhesives at the Interface and in the Bulk **Yamazaki**[1†] and Miyamae[1,2,3*] [1]Graduate School of Science and Engineering, Chiba University, Chiba, JAPAN [2]Molecular Chirality Research Center, Chiba University, Chiba, JAPAN [3]Soft Molecular Activation Research Center, Chiba University, Chiba, JAPAN
16:35-16:50	G-O-0477 Ab-initio Materials Selections of Interlayers for the Interface Stabilization of Solid-state Electrolytes and Lithium Anodes in Solid-state Lithium Batteries **Cheng-Man Wang**[†], Yi-Tzu Wu, and Ping-Chun Tsai[*] National Taiwan University of Science and Technology, Taipei, TAIWAN
16:50-17:05	G-O-0006 Effect of Cu Interconnect Roughness on the High-frequency Transmission Performance at 1–40 GHz **Ying-Chih Chiang**[1†], Chun-Jou Yu[1], Wei-Ling Chou[1], Hao-Wei Tseng[1,2], Yu-Hsun Chang[1], and Cheng-En Ho[1,*] [1]Department of Chemical Engineering & Materials Science, Yuan Ze University, Taoyuan City, TAIWAN [2]Unimicron Technology Corp., Guishan Dist., Taoyuan City, TAIWAN

Monday, November 13, 2023

09:00-18:00	Registration
09:00-18:00	Company Exhibition
Conference Room: Lecture Hall **Keynote Session (II)~ (III) Chairs: Prof. Jyh-Wei Lee and Prof. Jia-Hong Huang**	
09:00-09:40	**Keynote Session (II)** Topic: Self-healing ceramic coatings that operate in extreme environments Prof. **Samir Aouadi** Department of Materials Science and Engineering, University of North Texas, USA
09:40-10:20	**Keynote Session (III)** Topic: Development of functional high entropy alloy thin films by high power impulse magnetron sputtering technique Prof. **Jyh-Wei Lee** Department of Materials Engineering, Ming Chi University of Technology, TAIWAN
10:20-10:40	Break
10:40-12:00	Oral Session (II)
12:00-13:30	Lunch
13:30-15:10	Oral Session (III)
15:10-15:30	Break
15:30-17:00	Oral Session (IV)
17:00-18:30	Poster Session (I)

Symposium A. Coatings for Sustainable Energy

Conference Room: R204

Session A2. Chairs:
Prof. Tsu-Chin Chou, National Tsing Hua University, Hsinchu, TAIWAN
Prof. Amr Sabbah, National Taiwan University, Taipei, TAIWAN

10:40-11:00	A-I-0457 Tailoring Metal Dichalcogenides Semiconductors for Sustainable CO_2 Conversion **Amr Sabbah**[1†], Mohammad Qorbani[1], and Li-Chyong Chen[1], Kuei-Hsien Chen[1,2*] [1]Center for Condensed Matter Sciences, National Taiwan University, Taipei, TAIWAN [2]Institute of Atomic and Molecular Sciences, Academia Sinica, Taipei, TAIWAN

11:00-11:20	A-I-0328 Preparation of Cu_xPd_{1-x} Solid Solution Catalysts by Using Electrochemical Pulse Deposition for Electrochemical CO_2 Reduction to Ethanol **Tsu-Chin Chou**[†*] Institute of analytical and environmental sciences, National Tsing Hua University, Hsinchu, TAIWAN
11:20-11:35	A-O-0307 Co_3O_4-based Oxygen Evolution Reaction and Oxygen Reduction Reaction Bifunctional Electrocatalysts **Muhammad Ghufron**[†,1,2], Jyh-Ming Ting[2*] [1]Department of Physic, University of Brawijaya, Malang, INDONESIA [2]Department of Materials Science and Engineering, National Cheng Kung University, TAINAN
11:35-11:50	A-O-0310 Cation and Anion Co-Doped Iron Oxide for Improved Electro-Fenton Degradation **Yemima Purba**[1†], Jyh-Ming Ting[1*] [1]Department of Materials Science and Engineering, National Cheng Kung University, TAINAN
11:50-12:05	A-O-0418 Heterojunction Few-layer Co-MoS_2/WS_2 Thin film as a Bifunctional Electrocatalyst for Hydrogen evolution and Oxygen evolution reactions **Balasubramanian Akila**[†], Dhanapal Vasu, Te-Wei Chiu[*] Department of Materials and Mineral Resources Engineering, National Taipei University of Technology, TAIWAN
12:05-13:30	Lunch
Session A3. Chairs: **Prof. Tsan-Yao Chen, National Tsing Hua University, Hsinchu, TAIWAN** **Prof. Kuan-Wen Wang, National Central University, Taoyuan, TAIWAN**	
13:30-13:50	A-I-0222 Local collaboration between oxygen vacancy and active site in atomic metal oxide clusters with outstanding oxygen reduction activity **Tsan-Yao Chen**[1†], Sheng Dai [2*], Jyh-Pin Chou[3], Kuan-Wen Wang[4], Alice Hu[5] [1]Department of Engineering and System Science, National Tsing Hua University, Hsinchu 30013, TAIWAN [2]School of Chemistry & Molecular Engineering, East China University of Science and Technology, Shanghai 200237, P.R. CHINA [3]Department of Physics, National Changhua University of Education, TAIWAN [4]Institute of Materials Science and Engineering, National Central University, TAIWAN [5]Department of mechanical and biomedical engineering, City University of Hong Kong
13:50-14:10	A-I-0294 Innovative (100) Surface Configuration Enhances Oxygen Reduction Performance of Pt_3Co Nanodendrite Catalysts. **Kuan-Wen Wang***, Tzu-Hsi Huang

	Institute of Materials Science and Engineering, National Central University, TAIWAN
14:10-14:25	***Student Awards Semi-final*** A-O-0324 Probing the impact of high entropy alloy oxide film thickness on the performance improvement of VRFB graphite felt electrodes **K.k.Tiwari**[1†], C.H. Wang[1], B.S. Lou[2,3], J.W. Lee[4,5,6,7*] [1]Department of Materials Science and Engineering, National Taiwan University of Science and Technology, Taipei 10607, TAIWAN [2]Chemistry Division, Center for General Education, Chang Gung University, TAIWAN [3]Department of Orthopaedic Surgery, New Taipei Municipal TuCheng Hospital, Chang Gung Memorial Hospital, TAIWAN [4]Department of Materials Science and Engineering, Ming Chi University of Technology, New Taipei, TAIWAN [5]Center for Plasma and Thin Film Technologies, Ming Chi University of Technology, New Taipei, TAIWAN [6]Department of Mechanical Engineering, Chang Gung University, Taoyuan, TAIWAN [7]High Entropy Materials Center, National Tsing Hua University, Hsinchu, TAIWAN
14:25-14:45	A-I-0033 Nano-etching and Fe–N–C thin film coating on carbon surface for enhancement of oxygen evolution reaction **Jun Maruyama**[1†*], Shohei Maruyama[1], Setsuko Shibuya[1], Yoshiyuki Nonoguchi[2], Zyun Siroma[3] [1]Osaka Research Institute of Industrial Science and Technology, Osaka, JAPAN [2]Kyoto Institute of Technology, Kyoto, JAPAN [3]National Institute of Advanced Industrial Science and Technology, Ikeda, JAPAN
14:45-15:00	A-O-0304 Electrocatalytic Properties Evaluation of VNbMoTaWN_x High Entropy Alloy Thin Films **Zhi-Ting Liu**[1†], Chaur-Jeng Wang [1], Bih-Show Lou[2,3 *], Jyh-Wei Lee[4,5,6,7] [1]Department of Mechanical Engineering, National Taiwan University of Science and Technology, Taipei, TAIWAN [2] Chemistry Division, Center for General Education, Chang Gung University, Taoyuan, TAIWAN [3]Department of Orthopaedic Surgery, New Taipei Municipal TuCheng Hospital, Chang Gung Memorial Hospital, TAIWAN [4]Department of Materials Engineering, Ming Chi University of Technology, New Taipei, TAIWAN [5]Center for Plasma and Thin Film Technologies, Ming Chi University of Technology, New Taipei, TAIWAN [6]Department of Mechanical Engineering, Chang Gung University, Taoyuan, TAIWAN [7]High Entropy Materials Center, National Tsing Hua University, Hsinchu, TAIWAN
15:00-15:15	A-O-0036 Enhanced H_2 gas detectability of PdCo films via magnetic anisotropy optimization **Takashi Harumoto**[†*], Ji Shi Department of Materials Science and Engineering, Tokyo Institute of Technology, 2-12-1 O-okayama, Meguro, Tokyo 152-8552, JAPAN

15:15-15:30	Break
Session A4. Chairs: **Prof. Meng-Lin Tsai, National Taiwan University of Science and Technology, TAIWAN** **Prof. Pai-Chun Wei, National Chen Kung University, Tainan, TAIWAN**	
15:30-15:50	A-I-0031 Nontoxic/ Earth-abundant Metal Chalcogenide Materials for Solar Cell applications: $Cu_2ZnSn(S,Se)_4$ and $Cu_2BaSn(S,Se)_4$ **Cheng-Ying Chen**[†*] Department of Optoelectronics and Materials Technology, National Taiwan Ocean University, TAIWAN
15:50-16:10	A-I-0420 Development of New Working Electrodes for Enhancing Power Conversion Efficiencies of both Perovskite and Dye-sensitized Solar Cells **Jin-Hyo Boo**[1,2,†,*], Sang-Hun Nam[1,2], Dong In Kim[1], Rak Hyun Jeong[1,2] [1]Department of Chemistry, Sungkyunkwan University, REPUBLIC OF KOREA [2]Institute of Basic Science, Sungkyunkwan University, REPUBLIC OF KOREA
16:10-16:30	A-I-0005 Halide Perovskite/Cellulose Nanocrystal Films for High Stability Optoelectronic Applications **Meng-Lin Tsai**[†*], Chih-Hao Chiang, Lam Gia Hao Dao, Yu-Lun Liu, Kun-You Li Department of Materials Science and Engineering, National Taiwan University of Science and Technology, Taipei City, TAIWAN
16:30-16:45	A-O-0129 A PDMS-Al triboelectric nanogenerator using two-pulse laser to enhance effective contact area and its application. **You-Jun Huang**[†], Chi-Hung Tsai, and Chen-Kuei Chung[*] Department of Mechanical Engineering, National Cheng Kung University, TAIWAN
16:45-17:00	A-O-0510 Porous Nanostructured Cobalt Sulfide as Polysulfide Absorber for Lithium Sulfur Battery **Shu-Hao Chang**[*], Yi-Jing Tsai, Yu-Shun Wang, Yu-Chen Huang Department of Chemical Engineering, Chung Yuan Christian University, Taiwan

Symposium B. Nanostructured and Nanocomposite Coatings

Conference Room: R201

Session B2. Chairs: **Prof. JIA-HONG HUANG, National Tsing Hua University, Hsinchu, TAIWAN** **Prof. Pei-Chen Su, Nanyang Technological University, SINGAPORE** **Prof. Cheng-Ying Chen, National Taiwan Ocean University**	
10:40-11:00	B-I-0389 Nanoparticle Additives for 4D Printed Parts with Improved Dimensional Accuracy

	Pei-Chen SU[1,2†*], Ching Siang NG[1,2], Alameru Suriya SUBRAMANIAN[2] [1]School of Mechanical and Aerospace Engineering [2]Singapore Centre for 3D Printing (SC3DP), Nanyang Technological University, SINGAPORE
11:00-11:15	B-O-0127 Fabrication of Au/Poly(3-methoxythiophene) Hybrid Material toward Application in Electrocatalysts for Alcohol Oxidation **Tomoyuki Kurioka**[†*], Chun-Yi Chen, Tso-Fu Mark Chang, Masato Sone Institution of Innovative Research, Tokyo Institute of Technology, Yokohama, 226-8503, JAPAN
11:15-11:30	B-O-0158 Hydrothermal synthesis of Au decorated $BiFeO_3$ for high-efficient photocatalytic degradation **Jhen-Yang Wu**[1,†], Yung-Jung Hsu[2,*], and Tso-Fu Mark Chang[1,*] [1]Institute of Innovative Research (IIR), Tokyo Institute of Technology, Kanagawa 226-8503, JAPAN [2]Department of Materials Science and Engineering, National Yang Ming Chiao Tung University, Hsinchu 30010, TAIWAN
11:30-11:45	B-O-0515 Highly-sensitive magnetically-controllable $Ag@TiO_2@Fe_3O_4$ hollow spheres and their application in photocatalytic degradation **Chih-Yu Lee**[†], Wei-Rong Yang and Jenn-Ming Song[*] Department of Materials Science and Engineering, National Chung Hsing University, Taichung, TAIWAN
11:45-12:00	B-O-0071 Influence of Plasmonic Resonance and Size Effect on Photocatalysis of MoS_2/Gold Hybrid Nanostructures for Water Splitting **Yi-Hsueh Chen**[†], Jr-Jeng Ruan[*] Department of Materials Science and Engineering, National Cheng Kung University, Tainan, TAIWAN
12:00-13:30	Lunch
Session B3. Chairs: **Prof. Hong-Ying Chen, National Kaohsiung University of Science and Technology, TAIWAN** **Prof. Hailin Sun, Teer Coatings Ltd, UNITED KINGDOM**	
13:30-13:50	B-I-0208 Aging effects on Antimicrobial Properties with Nano-Cluster-Doped Low Friction Amorphous Carbon Coatings for Space Applications **Hailin Sun**, Giuseppe Sanzone, Jinglong Yin Teer Coatings Ltd., West Stone, Droitwich, Worcestershire, WR99AS, UNITED KINGDOM

13:50-14:10	B-I-0003 Benefits of metal-ion irradiation for nanostructure and phase control during thin film growth by magnetron sputtering **G. Greczynski**,[1†] X. Li,[1] A.V. Pshyk,[1] I. Petrov,[1,2] and L. Hultman[1] [1]Thin Film Physics Division, Department of Physics (IFM), Linköping University, SE-581 83 Linköping, SWEDEN [2]Frederick Seitz Materials Research Laboratory, University of Illinois, Urbana, Illinois 61801 and Materials Science Department, University of Illinois, Urbana, Illinois 61801
14:10-14:25	B-O-0078 Optimization of Laser Annealing Parameters Using Numerical Simulation and Machine Learning to Enhance the Optoelectronic Performance of ITO/Ag/ITO Electrodes **Keh-Moh Lin**[1†*], Ting-Rong Zhang[1], Wen-Tse Hsiao[2] [1]Department of Mechanical Engineering, Southern Taiwan University of Science and Technology, Tainan 71005, TAIWAN [2]Taiwan Instrument Research Institute, National Applied Research Laboratories, Hsinchu 30076, TAIWAN
14:25-14:40	B-O-0117 Nickel thickness dependent structural, and magnetic properties of Ni/rubrene bilayers **R. G. Tanguturi**[†], J.C. Tsai, Y.S. Li, and J.S. Tsay[*] Department of Physics, National Taiwan Normal University, Taipei, 116, TAIWAN
14:40-14:55	B-O-0055 Growth of Quenched-produced Diamond by Coaxial Arc Plasma Deposition for Biomedical Applications **Abdelrahman Zkria**[1,2†*], Lama Osman[1], Tsuyoshi Yoshitake[1] [1]Department of Advanced Energy Science and Engineering, Kyushu University, Kasuga, Fukuoka 816-8580, JAPAN [2]Center for Japan-Egypt Cooperation in Science and Technology, Kyushu University, Kasuga, Fukuoka 816-8580, JAPAN
14:55-15:10	B-O-0144 Green light and CO gas dual sensors of zinc oxide nanorods incorporating organic BDT (dithiophene)-OC8H17-Ph Chi-Chih Chuang[1], Yi-Hsuan Huang[1], Cheng-Shan Chen[1], Yao-Hong Huang[1], **Deng-Yi Wang**[2†], Chun-Yen Yang[3], Yew-Chung Sermon Wu[2], Ming-Yu Kuo[4], Hsiang Chen[1*] [1]Department of Applied Materials and Optoelectronic Engineering, National Chi Nan University, Puli, TAIWAN [2]Department of Materials Science and Engineering, National Yang Ming Chiao Tung University, Hsinchu, TAIWAN [3]Department of Electrical Engineering, National Chi Nan University, Puli, TAIWAN [4]Department of Applied Chemistry, National Chi Nan University, Puli, TAIWAN
15:10-15:30	Break

Session B4 Chairs:
Prof. Hong-Ying Chen, National Kaohsiung University of Science and Technology, TAIWAN
Prof. Yong-Jin Yoon, Korea Advanced Institute of Science and Technology, KOREA

15:30-15:50	B-I-0391 SOFC for Enhancing Time of Flight of Drone Operation with ALD thin film coating **YONG-JIN YOON**[†*], Lee Suhan Korea Advanced Institute of Science and Technology, Daegeon, Republic of Korea
15:50-16:05	B-O-0218 Study on field emission properties of gate vertically aligned carbon nanotube thin film **Chin-Pao Chuang**[2†], Shih Chun Tseng[1], Hsuan-Ting Lin[2], Ruei-Chi, Hsu[3], Hung-Yin Tsai[3*] [1]Department of Mechanical Engineering, National United University, Miaoli, TAIWAN [2]Department of Mechanical Engineering, Minghsin University of Science and Technology, Hsinchu, TAIWAN [3]Department of Power Mechanical Engineering, National Tsing Hua University, Hsinchu, TAIWAN
16:05-16:20	B-O-0027 Work Function Changes by 2D Material coatings on LaB_6 **S. Ogawa**[1†*], R. Yusa[2], G. Wang[3], M. Pettes[3], F. Liu[4], Y. Tsuda[5], A. Yoshigoe[5], T. Abukawa[2]. N. Moody[3], H. Yamaguchi[3] [1]Nihon University, Narashino, JAPAN [2]Tohoku University, Sendai, JAPAN [3]Los Alamos National Laboratory, Los Alamos, USA [4]Beijing Institute of Technology, Beijing, CHINA
16:20-16:35	B-O-0297 Solution-gated graphene field-effect transistors that exhibit percolation phenomena **Yu-Hsiu Lin**[†], Jhao-Liang Sie, Jong-Hong Lu, Chi-Hsien Huang[*] Department of Material Engineering, Ming Chi University of Technology, TAIWAN
16:35-16:50	B-O-0337 Hydrothermal fabrication of template-assisted perovskite-nanostructured films and their electric properties **Yen-Lun Chiu**[†], Kao-Shuo Chang* Academy of Innovative Semiconductor and Sustainable Manufacturing, National Cheng Kung University, TAIWAN

Symposium C. Semiconductor, Optoelectronic and Flexible Device Films

Conference Room: Lecture Hall

Session C2. Chairs:
Prof. Dong-Sing Wu, Nation Chung Hsing University, TAIWAN
Prof. Vincent Tung, The University of Tokyo, JAPAN

10:40-11:00	C-I-0237 Wafer-scale Epitaxy Growth of 2D Semiconducting Films with Continuous Single Crystallinity **Vincent Tung**[†*]

	Department of Chemical System Engineering, School of Engineering, The University of Tokyo, Tokyo 113-8656, JAPAN
11:00-11:15	C-O-0155 Thickness-dependent magnetotransport and ultrafast dynamic properties of topological insulator Bi_2Se_3 thin films grown using pulsed laser deposition **Phuoc Huu Le**[1,2*†], Nguyen Nhat Quyen[3], Le Thi Cam Tuyen[4], Sheng-Rui Jian[5], Jyh-Wei Lee[2,6], Chih-Wei Luo[3], Jenh-Yih Juang[3], Jiunn-Yuan Lin[7] [1]Department of Physics and Biophysics, Faculty of Basic Sciences, Can Tho University of Medicine and Pharmacy, 179 Nguyen Van Cu Street, Can Tho City, VIETNAM [2]Center for Plasma and Thin Film Technologies, Ming Chi University of Technology, New Taipei City 24301, TAIWAN [3]Department of Electrophysics, National Yang Ming Chiao Tung University, TAIWAN [4]Faculty of Chemical Engineering, Can Tho University–3/2 Street, VIETNAM [5]Department of Materials Science and Engineering, I-Shou University, TAIWAN [6]Department of Materials Engineering, Ming Chi University of Technology, TAIWAN [7]Institute of Physics, National Yang-Ming Chiao Tung University, TAIWAN
11:15-11:30	C-O-0189 Interfacial Characterization of Si-Doped HfO_2 Thin-Film Prepared by Atomic Layer Deposition **Wei-Zei Wang**[1†], Pi-Chun Juan [1], Shun-Yi Jian [1], Pak-Man Yiu [1], Sheng-Chi Chen [1,2*], Yen-Ho Chu [3], Liang-Pin Chou [3] and Chung-Lin Huang [3] [1]Department of Materials Engineering and Center for Plasma and Thin Film Technologies, Ming Chi University of Technology, New Taipei 243, TAIWAN [2]College of Engineering and Center for Green Technology, Chang Gung University, Taoyuan 333, TAIWAN [3]Nanya Technology Corporation (NTC), New Taipei 243, TAIWAN
11:30-11:45	C-O-0215 Hydrogenation of bi-layer Graphene thin film for future “Magnonics” application **Sekhar Chandra Ray**[1†*], W. F. Pong[2*] [1]Department of Physics, College of Science, Engineering and Technology, University of South Africa, Private Bag X6, Florida, 1710, Science Campus, Christiaan de Wet and Pioneer Avenue, Florida Park, Johannesburg, SOUTH AFRICA [2]Department of Physics, Tamkang University, Tamsui 251, Taipei, TAIWAN
11:45-12:00	C-O-0234 Effects of Process Conditions on Carrier Concentration in $ZnGa_2O_4$ Thin Films Deposited by RF-Magnetron Sputtering and MOCVD **Shiming Huang**[1†], Shi-Min Huang[1], Chao-Chun Yen[1], Dong-Sing Wu[1,2,3*] [1]Department of Materials Science and Engineering, Nation Chung Hsing University, Taichung, TAIWAN [2]Department of Applied Materials and Optoelectronic Engineering, National Chi Nan University, Nantou, TAIWAN [3]Innovation and Development Center of Sustainable Agriculture, National Chung Hsing University, Taichung, TAIWAN
12:00-13:30	Lunch

Session C3. Chairs: **Prof. Kao-Shuo Chang, National Cheng Kung University, TAIWAN** **Prof. Bui Nguyen Quoc Trinh, Vietnam National University, VIETNAM**	
13:30-13:50	C-I-0487 Cupric Oxide Based Thin Films: Simulation, Experiment and Application Approaches **Bui Nguyen Quoc Trinh**[1†*], Vu Dinh Hong Phuc[1], Nguyen Dieu Thao[1], Nguyen Van Loi[2,3] [1]Vietnam National University, Hanoi, Vietnam Japan University, Faculty of Advanced Technology and Engineering, Luu Huu Phuoc, Nam Tu Liem, Hanoi, VIETNAM [2]Vietnam National University, Hanoi, University of Science, Faculty of Physics, 334 Nguyen Trai, Thanh Xuan, Hanoi, VIETNAM [3]Academy of Cryptography Techniques, Department of Foundation, 141 Chien Thang, Thanh Tri, Hanoi, VIETNAM
13:50-14:05	C-O-0063 Delaminated Manganese Phosphorus Trisulfide with multiple layers coupled with Si featuring ultrahigh UV photodetection performances **Tsung-Yen Wu**[†], Chia-Yun Chen[*] Department of Materials Science National Cheng Kung University, TAIWAN
14:05-14:20	C-O-0238 Investigating thin ITO films for light detectors at cryogenic temperatures **Giorgio Keppel**[1†], Oscar Azzolini[1], Cristian Pira[1], Alisa Kotliarenko[1,2*], Mourad El Idrissi[1], Davide Ford[1] [1]Legnaro National Laboratories, Italian National Institute for Nuclear Physics, Legnaro, ITALY [2]Department of Physics and Earth Science, University of Ferrara, 44122 Ferrara, ITALY
14:20-14:35	C-O-0037 Influence of Oxygen Plasma treatment on Polymer Derived Ceramics and Polyimide film of Surface Roughness and Surface Energy **Te-Rung Chi**[†], Lung-Hao Hu[*] Department of Mechanical and Electro-Mechanical Engineering, National Sun Yat-sen University, Kaohsiung, Taiwan, R.O.C.
14:35-14:50	C-O-0460 Piezoelectric performance enhancement of MgZnO thin films by selective etching of Magnesium **Bruno Rao**[1†], Chuan-Pu Liu[2*] [1]Department of Materials Science and Engineering, National Cheng-Kung University, Tainan, TAIWAN [2]Department of Materials Science and Engineering, National Cheng-Kung University, Tainan, TAIWAN
14:50-15:05	C-O-0381 Investigation of Excess Oxygen SiO_x Thin Films Grown by Inductively Coupled Plasma Enhanced Deposition **Ondřej Šik**[†*1,3], Michal Potoček[2,3], Pavel Tofel[1,3]

	[1]Department of Physics, Faculty of Electrical Engineering and Communication, Brno University of Technology, Technická 2848/8, 616 00 Brno, CZECH REPUBLIC [2]Institute of Physical Engineering, Faculty of Mechanical Engineering, Brno University of Technology, Technická 2896/2, 616 69 Brno, CZECH REPUBLIC [3]Central European Institute of Technology, Purkyňova 656/123, 612 00 Brno, CZECH REPUBLIC
15:05-15:30	break
Session C4. Chairs: **Prof. Chia-Yun Chen, National Cheng Kung University, TAIWAN** **Prof. Nguyen Ngoc Dinh, VNU University of Science, VIETNAM**	
15:30-15:50	C-I-0188 3D bio-printing of blood vessel-like structures using umbilical cord stem cells **Nguyen Ngoc Dinh**[1*†], Luu Manh Quynh[1], Pham Van Thanh[1], Tran Vinh Thang[1], Hoang Van Huy[1], Do Dieu Linh[1], Tran Trung Nghia[1], Nguyen Van Son[1], Dinh Khanh Manh[1], Nguyen Thi Yen Lan[1], Ngo Duy Minh[1], Do Xuan Hai[2], Than Thi Trang Uyen[3], Hoang Thi My Nhung[1], Nguyen Hoang Nam[2] [1]VNU University of Science [2]Vietnam Military Medical University [3]Vinmec Hightech Center, VINMEC
15:50-16:05	***Student Awards Semi-final*** C-O-0247 Evaluation of Cross-Sectional Geometry Effect of Au Polycrystalline Micro-cantilever on Bending Strength **Ryohei Hori**[†*], Kazuya Fujita, Chun-Yi Chen, Tomoyuki Kurioka, Tso-Fu Mark Chang, Parthojit Chakraborty, Katsuyuki Machida, Hiroyuki Ito, Yoshihiro Miyake, Masato Sone Institute of Innovative Research, Tokyo Institute of Technology, Yokohama, JAPAN
16:05-16:20	***Student Awards Semi-final*** C-O-0226 MIM capacitors featuring low EOT and low leakage current density by nitrogen-incorporated $HfO_2/ZrO_2/HfO_2$ **Huan Wu**[1†], Kuei-Shu Chang-Liao[1,2*] [1]College of Semiconductor Research, National Tsing Hua University, Hsinchu, Taiwan, [2]Department of Engineering and System Science / Semiconductor Device Processing & Measuring Lab, National Tsing Hua University, Hsinchu, Taiwan
16:20-16:35	***Student Awards Semi-final*** C-O-0325 Nitrogen doped High entropy $Ba(Zr,Ti,Ta,Hf,Mo)O_{3-x}N_x$ Films based ZnSnO Thin Films Transistors for UV sensing **Van Dung Nguyen**[1†], Takahiro Nagata[2], Kao-Shuo Chang[1*] [1]Department of Materials Science & Engineering, National Cheng Kung University, TAIWAN

	[2]International Center for Materials Nanoarchitectonics (Wpi-MANA) Nano Electronics Device Materials Group, National Institute for Materials Science (NIMS). 1-1 Namiki, Tsukuba, Ibaraki 305-0044, JAPAN
16:35-16:50	***Student Awards Semi-final*** C-O-0007 Enhanced Adhesion Strength between Electroplated Cu and ABF Substrate with Thermal Treatment **Pei-Chia Hsu**[1†], Yung-Sheng Lu[1], Min-Kai Wu[1], Hung-Cheng Liu[2], Cheng-En Ho[1,*] [1]Department of Chemical Engineering & Materials Science, Yuan Ze University, Taoyuan City 320, Taiwan [2]Kinsus Interconnect Technology Corp., Taoyuan City 327, Taiwan

Symposium D. Tribological and Protective Coatings

Conference Room: R202

Session D2. Chairs:
Prof. Shih-Chen Shi, National Cheng Kung University, TAIWAN
Prof. Simizu Tetuhide, Tokyo Metropolitan University, JAPAN

10:40-11:00	D-I-0388 Recent Advances of Atmospheric Pressure Plasma Nitriding for Surface Hardening on Metals **Yu-Lin Kuo**[1,2†*], Jhao-Yu Guo[1,2], Song-Yu Chen[1], Ming-Chun Tsai[1], Yung-Hsiang Chan[1], Yu-Chi Chang[1], Jie-Long Wang[1] [1]Department of Mechanical Engineering, National Taiwan University of Science and Technology, Taipei, Taiwan, R.O.C. [2]Advanced Manufacturing Research Center, National Taiwan University of Science and Technology, Taipei, Taiwan, R.O.C.
11:00-11:15	D-O-0259 Characterization and Corrosion Studies of Environmentally-Friendly Conversion Coating as Chromate Free on 6061 Aluminium Alloy **Yu-Cheng Liu**[1†], Salim Levent Aktug[2], Shun-Yi Jian[1,3*], Chin-Jou Chang[1], Chun-Chieh Tseng[4] [1]Department of Material Engineering, Ming Chi University of Technology, TAIWAN [2]Department of Materials Science and Engineering, Gebze Technical University, Gebze 41400, Kocaeli, TURKEY [3]Center for Plasma and Thin Film Technologies, Ming Chi University of Technology, New Taipei, TAIWAN [4]Combination Medical Device Technology Division, Medical Devices Department, Metal Industries Research & Development Centre, TAIWAN
11:15-11:30	D-O-0273 Enhancing mechanical properties of surface hardness and surface free energy by nitriding using atmospheric pressure plasma jet **Fikiru Tafase Mosisa**[1†], Yu-Lin Kuo[1,2*], Jhao-Yu Guo[1], Sifa'ul Mas'ud[1]

	[1]Department of Mechanical Engineering, National Taiwan University of Science and Technology, Taipei, 10607, Taiwan, R.O.C. [2]Advanced Manufacturing Research Center, National Taiwan University of Science and Technology, Taipei, 10607, Taiwan, R.O.C.
11:30-11:45	D-O-0178 Effect of increasing residence time of methane on amount of exhausted methane in DLC coating with plasma CVD **Chinatsu Ito**[1†], Hiroyuki Kousaka[2*] and Akinori Oda[3*] [1]Graduate School of Natural Science and technology, Gifu University, JAPAN [2]Department of Mechanical Engineering, Gifu University, Gifu city, JAPAN [3]Department of Electrical and Electric Engineering Chiba Institute of Technology, Narashino City, JAPAN
11:45-12:00	D-O-0260 Development of a Ce Thin Film Covered on Mn-Ce-P Conversion Coating for Excellently Corrosion Resistance Improvement on LZ91 Magnesium Alloy **Chin-Jou Chang**[1†], Salim Levent Aktug[2], Shun-Yi Jian[1,3*], Yu-Cheng Liu[1] [1]Department of Material Engineering, Ming Chi University of Technology, TAIWAN [2]Department of Materials Science and Engineering, Gebze Technical University, Gebze 41400, Kocaeli, TURKEY [3]Center for Plasma and Thin Film Technologies, Ming Chi University of Technology, New Taipei, TAIWAN
12:00-13:30	Lunch
Session D3. Chairs: **Prof. Bo-Shiuan Li, National Sun Yat-Sen University, TAIWAN** **Prof. Fan-Bean Wu, National United University, TAIWAN**	
13:30-13:50	D-I-0438 Hard Coating on Refillable Solid State Hydrogen Storage Chamber **Yun-Qi Li**[1†], Shao-Fu Chang[2], Chien-Chon Chen[2*] [1]College of Engineering and Science, Ph.D. Program in Materials and Chemical Engineering, National United University, Miaoli City, TAIWAN [2]Department of Energy Engineering, National United University, TAIWAN
13:50-14:05	***Student Awards Semi-final*** D-O-0198 Fabrication of Anion-Exchangeable Electrodeposited Zn-Al Layered Double Hydroxides (LDHs) Coating on ZX21 Mg Alloy **Wei-Lun Hsiao**[†], Peng-Wei Chu[*] Department of Engineering and System Science, National Tsing Hua University, Hsinchu, TAIWAN
14:05-14:20	D-O-0186 Evaluating the Effect of Thickness of ZrN Thin Film Deposited on Zircaloy-4 on Hydrogen Resistance. **Yi-Fan Tseng**[1,2†], Kuan-Che Lan[1,3*], Yan-Ting Chen[1], Hsiao-Ming Tung[2]

	[1]National Tsing Hua University Department of Engineering and System Science, TAIWAN [2]Nuclear Fuel and Materials Division, Institute of Nuclear Energy Research, TAIWAN [3]National Tsing Hua University Institute of Nuclear Engineering and Science, TAIWAN
14:20-14:35	D-O-0138 Fe modified CrAlN coatings for tribological applications Bobzin, **Kalscheuer**[†], Möbius, Welters, Görtz[*] Surface Engineering Institute, RWTH Aachen University, Aachen, GERMANY
14:35-14:50	D-O-0142 Degradation of ZnO-based Photodetectors in Salty Water Vapor Yi-Shiang Chiu[1], Sang-Hao Lin[1], **Cheng-Shan Chen**[1†], Yao-Hong Huang[1], Deng-Yi Wang[2], Yu-Chin Cheng[1], Jyun-jie Chen[1], Hsiang Chen[1*] [1]Department of Applied Materials and Optoelectronic Engineering, National Chi Nan University, Puli, TAIWAN [2]Department of Materials Science and Engineering, National Yang Ming Chiao Tung University, Hsinchu, TAIWAN
14:50-15:05	D-O-0170 On the growth of Ti and Al films on inner-wall of millimeter-sized hole by DC magnetron sputtering **H. Komiya**[1†*], R. Alvarez[2], Y. Teranishi[3], M. Yang[1], A. Palmero[2], T. Shimizu[1] [1]Department of Mechanical Systems Design, Tokyo Metropolitan University, JAPAN [2]Nanotechnology on Surfaces Laboratory, Institute of Materials Science of Seville (CSIC-Univ. Sevilla), Sevilla, SPAIN [3]Industrial Process Technology Group, Tokyo Metropolitan Industrial Technology Research Institute, Tokyo, JAPAN
15:05-15:30	Break
Session D4. Chairs: **Prof. Bo-Shiuan Li, National Sun Yat-Sen University, TAIWAN** **Prof. Fan-Bean Wu, National United University, TAIWAN**	
15:30-15:50	D-I-0365 Microstructure and tribological properties of cold sparyed CoCrFeNiMo$_x$ high entropy alloy coatings **Shuo Yin**[*†], Ningsong Fan Trinity College Dublin, the University of Dublin, School of Engineering, IRELAND
15:50-16:05	D-O-0348 Investigating the corrosion resistance of Zn and Al coating deposited by arc thermal spraying process **Tai-Cheng Chen**[1†*], Tung-Yuan Yung[2], Chau-Chang Chou[3], Ren-Kae Shiue[1], Leu-Wen Tsay[4] [1]Dept. of Materials Science and Engineering, National Taiwan University, Taiwan [2]Department of Material Research, National Atomic Research Institute, Taiwan

	[3]Department of Mechanical and Mechatronic Engineering, National Taiwan Ocean University, Keelung 20224, Taiwan, R.O.C. [4]Department of Optoelectronics and Materials Technology, National Taiwan Ocean University, Keelung 20224, Taiwan, R.O.C.
16:05-16:20	D-O-0439 Improve AISI 1020 Steel Surface Hardness and Corrosion Resistance by Thermal Spray Anodic Film **Chia-Hsien Liu**[1†], Shao-Fu Chang[2], Chien-Chon Chen[2*] [1]College of Engineering and Science, Ph.D. Program in Materials and Chemical Engineering, National United University, Miaoli City, TAIWAN [2]Department of Energy Engineering, National United University, TAIWAN
16:20-16:35	D-O-0400 A predictive modeling for cold spray deposition and the resulting microstructure toward additive manufacturing using polymeric templates **Jung-Ting Tsai**[1†*], Semih Akin[2], Martin Byung-Guk Jun[2], David F. Bahr[3] [1]Department of Mechanical Engineering, National Taiwan University of Science and Technology, Taipei, 106335, TAIWAN [2]School of Mechanical Engineering, Purdue University, UNITED STATES [3]School of Materials Engineering, Purdue University, UNITED STATES
16:35-16:50	D-O-0289 The Effects of Cr Content to the Microstructure and Mechanical Properties of TiVNbCr$_x$Ta Refractory High-Entropy Alloy Coatings **Yong-Ze Xue**[†], Po-Yuan Yeh, Che-Hsin Lin, Bo-Shiuan Li[*] Department of Mechanical and Electro-Mechanical Engineering, National Sun Yat-Sen University, Kaohsiung, TAIWAN

Symposium E. Organic and Biological Coatings

Conference Room: R303

Session E2. Chairs:
Prof. Yusuke Tsutsumi, National Institute for Materials Science (NIMS), JAPAN
Prof. Ying-Sui Sun, Taipei Medical University, TAIWAN

10:40-11:00	E-I-0311 Development of multi-biofunctionalized titanium surface by two-step micro-arc oxidation. **Yusuke Tsutsumi**[†*] Research Center for Structural Materials, National Institute for Materials Science (NIMS), 1-2-1 Sengen, Tsukuba, Ibaraki 305-0047, JAPAN
11:00-11:15	E-O-0452 Non-Stick High Biocompatibility Thin-Film Metallic Glass (TFMG) Coating for Medical Devices **Helmi Son Haji**[†1], Jinn P. Chu[2*] [1]National Taiwan University of Science and Technology, Taipei 10607, TAIWAN

	[2]Applied Research Center for Thin-Film Metallic Glass, National Taiwan University of Science and Technology, Taipei 10607, TAIWAN
11:15-11:30	E-O-0340 Biocompatibility and mechanical properties of ZrTiNbFe medium entropy alloy thin films **Shao-Kai Chung**[1†], Bih-Show Lou [2,3*], Jyh-Wei Lee [1, 4, 5, 6] [1]Dept. of Materials Engineering, Ming Chi University of Technology, TAIWAN [2]Chemistry Division, Center for General Education, Chang Gung University, Taoyuan, TAIWAN [3]Department of Orthopaedic Surgery, New Taipei Municipal TuCheng Hospital, Chang Gung Memorial Hospital, TAIWAN [4]Center for Plasma and Thin Film Technologies, Ming Chi University of Technology, New Taipei, TAIWAN [5]Department of Mechanical Engineering, Chang Gung University, TAIWAN [6]High Entropy Materials Center, National Tsing Hua University, Hsinchu, TAIWAN
11:30-11:45	E-O-0320 Preparation of hydrogenated CoCrMo alloy for orthopedic implant application **Yun-Qing Sun**[†], Yu-Chieh Chen, Yu-Chien Lin, Ren-Jei Chung[*] Department of Chemical Engineering and Biotechnology, National Taipei University of Technology, Taipei, TAIWAN
11:45-13:30	Lunch
Session E3. Chairs: **Prof. Han-Cheol Choe, College of Dentistry, Chosun University, KOREA** **Prof. Jr-Jeng Ruan, National Cheng Kung University, Tainan, TAIWAN**	
13:30-13:50	E-I-0501 Functional Surface Modification for Dental Implant **Han-Cheol Choe**[†*] Advanced Functional Surface and Biomaterials Research Lab, Department of Dental Materials and Research Center of Surface Control for Oral Tissue Regenration (BRL Center of NRF), Convergence Research Center for Treatment of Oral Soft Tissue Disease (MRC), College of Dentistry, Chosun University, KOREA
13:50-14:05	E-O-0317 Data-driven prediction of protein adsorption on organic surfaces **Tomohiro Hayashi**[†,*], Shunta Chikami, and Hiroyuki Tahara Tokyo Institute of Technology, Tokyo, JAPAN
14:05-14:20	E-O-0421 Application of Differential Muller Matrix for MicroRNA Detection **Yi-Cheng Pan**[†], Yi-Ting Huang, Zi-Hao Hong, Tzu-Shiang Lu, Quoc-Hung Phan[*] Department of Mechanical Engineering, National United University, TAIWAN
14:20-14:35	E-O-0298 Gold nanoparticles decorated on graphene oxide for electrochemical biosensors **Shao-Yang Lu**[1†], Pei-Yin Chen[2], Chi-Hsien Huang [1*], Shih-Chiang Weng[1]

	[1]Department of Material Engineering, Ming Chi University of Technology, TAIWAN [2]Material and Chemical Research Laboratories, Industrial Technology Research Institute, Hsinchu, TAIWAN
14:35-14:50	***Student Awards Semi-final*** E-O-0334 Visible-light Disinfection Study of Ag@TiO_2 Against Bacteriophage MS_2 **C.-T. Wu**[1†], T.-Y. Ji[2], T.-Y. Hsu[2], M.-Y. Chen[3], M.-Y. Lin[2], K.-S. Chang[1*] [1]Department of Materials Science and Engineering, National Cheng Kung University, Tainan, TAIWAN [2]Department of Environmental and Occupational Health, College of Medicine, National Cheng Kung University, Tainan, TAIWAN [3]Institute of Oral Medicine, Department of Dentistry, College of Medicine, National Cheng Kung University, Tainan, TAIWAN

Symposium F. Metallic and High-Entropy Alloy Coatings

Conference Room: R205

Session F2. Chairs:
Prof. Yi-Chia Chou, National Taiwan University, Taipei, TAIWAN
Prof. Jyh-Wei Lee, Ming Chi University of Technology, TAIWAN

10:40-11:00	F-I-0019 Multi-component and high-entropy materials – bonding, disorder and possibilities **Erik Lewin**[†] Department. of Chemistry – Angström laboratory, Uppsala university, SWEDEN
11:00-11:15	F-O-0165 Microstructures and mechanical properties of $(CoCrNi)_{100-x-y}Mo_xTi_y$ medium entropy alloy films **Pin-Yu Chen**[†*], Chun-Hway Hsueh Dept. of Materials Science and Engineering, National Taiwan University, TAIWAN
11:15-11:30	F-O-0278 Effect of bilayer period on the mechanical properties and corrosion resistance of TiZrNbTaFeN/TiN high entropy alloy nitride multilayer thin films **Sheng-Yuan Hung**[1†], Bih-Show Lou[2,3], Jyh-Wei Lee[1,4,5,6*] [1]Department of Materials Engineering, Ming Chi University of Technology, TAIWAN [2]Chemistry Division, Center for General Education, Chang Gung University, TAIWAN [3]Department of Orthopaedic Surgery, New Taipei Municipal TuCheng Hospital, Chang Gung Memorial Hospital, TAIWAN [4]Center for Plasma and Thin Film Technologies, Ming Chi University of Technology, New Taipei, TAIWAN [5]Department of Mechanical Engineering, Chang Gung University, Taoyuan, TAIWAN [6]High Entropy Materials Center, National Tsing Hua University, Hsinchu, TAIWAN
11:30-11:45	F-O-0474

	Influence of working gas pressure on the microstructure and mechanical properties of sputter-deposited MoNbTaW multi-principal element alloy thin films **Bandla Bharath Kumar**†, Katta Sai Kumar, Venkata Girish Kotnur* School of Engineering Sciences and Technology, University of Hyderabad, INDIA
11:45-12:00	F-O-0093 Effect of Composition and Preparation conditions on the Structure and Properties of High Entropy Alloy Films **B. Li**†, W. Luo*, T. Harumoto*, J. Shi* Department of Materials Science and Engineering, Tokyo Institute of Technology, 2-12-1 Ookayama, Meguro-ku, Tokyo 152-8552, JAPAN
12:00-13:30	Lunch
Session F3. Chairs: **Prof. Junko Hieda, Physics and Energy Engineering University of Nagoya, Nagoya, JAPAN** **Prof. Shih-Hsun Chen, National Yang Ming Chiao Tung University, Hsinchu, TAIWAN**	
13:30-13:50	F-I-0427 Investigation of Superior Properties of High Entropy Alloys using Transmission Electron Microscopy and Possible Medical Application **Yi-Chia Chou**[1†] Shih-Jie Lin[2], Peter K. Liaw[3] [1]Department of Materials Science and Engineering, National Taiwan University, Taipei, TAIWAN [2]Department of Orthopaedic Surgery, New Taipei Municipal TuCheng Hospital, Chang Gung Memorial Hospital, New Taipei City, TAIWAN [3]Department of Materials Science and Engineering, The University of Tennessee, USA
13:50-14:05	F-O-0122 Mechanical properties and corrosive resistance of (ZrBSiCr)N thin films **Li-Zhu Wang**†, Yung-I Chen* Department of Optoelectronics and Materials Technology, National Taiwan Ocean University, Keelung 202301, TAIWAN
14:05-14:20	F-O-0292 The Potential of DC-Atmospheric Pressure Plasma Jet (DC-APPJ) on The Metals Deposition **Ahmad Nur Riza**[1†], Maulani Safitri[1], Yu-Lin Kuo[1,2,*] [1]Department of Mechanical Engineering Department, National Taiwan University of Science and Technology, Taipei, Taiwan, R.O.C. [2]Advanced Manufacturing Research Center, National Taiwan University of Science and Technology, Taipei, Taiwan, R.O.C.
14:20-14:35	F-O-0336 The influence of oxygen and nitrogen flow ratio on structure and properties of AlCrTaTiZr oxynitride films **Y.C. Liang**[1], M.I. Lin[1], J.W. Yeh[1,2], C.W. Tsai[1,2,*] [1]Department of Materials Science and Engineering, National Tsing Hua University, Hsinchu, TAIWAN [2]High Entropy Materials Center, National Tsing Hua University, TAIWAN

14:35-14:50	F-O-0272 Properties evaluation of TiZrNbTaFeBN high entropy alloy boron nitride thin films **Meng-Hsueh Chuang**[1†]、Bih-Show Lou[3,4]、Jyh-Wei Lee[2,5,6,7*]、Chaur-Jeng Wang[1] [1]Department of Mechanical Engineering, National Taiwan University of Science and Technology, TAIWAN [2]Department of Materials Engineering, Ming Chi University of Technology, TAIWAN [3]Chemistry Division, Center for General Education, Chang Gung University, Taoyuan, TAIWAN [4]Department of Orthopaedic Surgery, New Taipei Municipal TuCheng Hospital, Chang Gung Memorial Hospital, TAIWAN [5]Center for Plasma and Thin Film Technologies, Ming Chi University of Technology, New Taipei, TAIWAN [6]Department of Mechanical Engineering, Chang Gung University, Taoyuan, TAIWAN [7]High Entropy Materials Center, National Tsing Hua University, Hsinchu, TAIWAN
14:50-15:05	***Student Awards Semi-final*** F-O-0338 Supercritical CO_2-Assisted Ni-P Electroless Plating of PEI 3D Components **Ami Iwasaki**[1†*], Po-Wei Cheng [1], Tomoyuki Kurioka[1], Chun-Yi Chen[1], Tso-Fu Mark Chang[1], Kei Takase [2], Hiroshi Ishihata [2], Masato Sone[1] [1]Institute of Innovative Research, Tokyo Institute of Technology, JAPAN [2]Diagnostic Radiology, Tohoku University Graduate School of Medicine, JAPAN
15:05-15:30	Break
Session F4. Chairs: **Prof. Erik Lewin, Uppsala university, SWEDEN** **Prof. Pak-Man Yiu, Ming Chi University of Technology, TAIWAN**	
15:30-15:50	F-I-0249 Development of titanium-magnesium alloy films for biomedical applications **Junko Hieda**[†*] Nagoya University, Nagoya, JAPAN
15:50-16:05	F-O-0075 Magnetron Sputtered Ta-W-B Amorphous Refractory Alloy Thin Film For Tribological Applications **Shaoyu Lu**[1†], Pakman Yiu[1,2*] [1]Department of Materials Engineering, Ming Chi University of Technology, TAIWAN [2]Center of Plasma and Thin Film Technology, Ming Chi University of Technology, TAIWAN
16:05-16:20	F-O-0146 THE EFFECTS OF PULSED-CURRENT DENSITIES ON ELECTRODEPOSTION OF CoCrFeNiSn HIGH ENTROPY ALLOYS THIN FILMS **Sakdipat Jaturapronperm**[1†], Pongpak Chiyasak[1], Anubhap Taechamahaphan[2], Pattraporn Krajaisri[1], Rachakorn Puranasiri[1], Bhuwadol Thanathattakum[1], Aphichart Rodchanarowan[1,*]

	[1]Department of Materials Engineering, Faculty of Engineering, Kasetsart University, Chatuchak, Bangkok, 10900, THAILAND [2]Department of Nanoengineering, Faculty of Engineering, the University of California San Diego, 9500 Gilman Dr, La Jolla, Ca 92093
16:20-16:35	F-O-0194 Zr-based Metallic Glass Thin Films: A Study of Time and Temperature-Dependent Mechanical Properties Using Bulge Test **Tra Anh Khoa Nguyen**[1†], Second author Surname[2*], Nhat Minh Dang[1], Chi-Hang Lin[1,2], Zhao-Ying Wang[1], Meng-Chieh Lee[3], Yao-Chuan Tsai[4], Ming-Tzer Lin[1,5*] [1]Graduate Institute of Precision Engineering, National Chung Hsing University, Taichung, 402, TAIWAN [2]Aeronautical Systems Research Division, National Chung-Shan Institute of Science and Technology, Taichung, 407, TAIWAN [3]ASML Technology Taiwan Ltd, HsinChu, 300, TAIWAN [4]Department of Bio-Industrial Mechatronics Engineering, National Chung Hsing University, Taichung, 402, TAIWAN [5]Industrial and Smart Technology Program, Academy of Circular Economy, National Chung Hsing University, Nantou, 540, TAIWAN
16:35-16:50	F-O-0271 Fabrication of TiZrNbSiMoN high entropy alloy thin films using a high power impulse magnetron sputtering technique: Effects of nitrogen addition **Ren-Zong Lin**[1†], Bih-Show Lou[2,3], Jyh-Wei Lee[1,4,5,6*] [1]Department of Materials Engineering, Ming Chi University of Technology, New Taipei, TAIWAN [2]Chemistry Division, Center for General Education, Chang Gung University, TAIWAN [3]Department of Orthopaedic Surgery, New Taipei Municipal TuCheng Hospital, Chang Gung Memorial Hospital, TAIWAN [4]Center for Plasma and Thin Film Technologies, Ming Chi University of Technology, New Taipei, TAIWAN [5]Department of Mechanical Engineering, Chang Gung University, Taoyuan, TAIWAN [6]High Entropy Materials Center, National Tsing Hua University, Hsinchu, TAIWAN
16:50-17:05	F-O-0149 Effect of substrate bias on the microstructure and properties of (AlCrSiNbZr)N_x high entropy nitride thin film **Yi-Jun Yan**[†], Jian-Jie Wang, Fan-Yi Ouyang[*] Department of Engineering and System Science, National Tsing Hua University, Hsinchu 300, TAIWAN

Tuesday, November 14, 2023	
09:00-18:00	Registration
09:00-17:00	Company Exhibition
Conference Room: Lecture Hall **Plenary Session (II) and Keynote Session (IV) Chair: Prof. Jenq-Gong Duh**	
09:00-09:50	**Plenary Session (II)** Topic: Electronic Thin Film Reliability in 3D IC Technology Prof. **King-Ning Tu** Dept. of Materials Science and Engineering, and Dept. of Electrical Engineering, City University of Hong Kong, HONG KONG
09:50-10:30	**Keynote Session (IV)** Topic: Superhard (MoSiTiVZr)N_x high-entropy nitride coatings Prof. **Sam Zhang** Harbin Institute of Technology and HIT Zhengzhou Research Institute, CHINA
10:30-10:50	Break
10:50-12:00	Oral Session (V)
12:00-13:00	NSTC Project PI Meeting (國科會學門計畫主持人會議) for Taiwanese professors
13:00-13:30	TACT Member Meeting (台灣鍍膜科技協會會員大會)
12:00-13:30	Lunch
13:30-15:40	**Short Course (II) -** This session will be held in Chinese **Conference Room: Lecture Hall** Topic: Material Informatics toward 5G/6G from Machine Learning **Prof. Kao-Shuo Chang** Department of Materials Science and Engineering, National Cheng Kung University, Taiwan **Prof. Yen-Hsun Su** Department of Materials Science and Engineering, National Cheng Kung University
13:30-15:40	Oral session (VI)
15:40-16:00	Break
16:00-17:30	Poster Session (II)
18:00-20:30	Banquet Banquet Hall, B2F, THE HOWARD PLAZA HOTEL TAIPEI 台北福華大飯店 B2/宴會廳 (#160, Ren-Ai Rd., Sec.3, Taipei,)

Symposium A. Coatings for Sustainable Energy

Conference Room: R204

Session A5. Chairs:
Prof. Po-Chun Chen, National Taipei University of Technology, TAIWAN
Prof. Mutsumi Sugiyama, Tokyo University of Science, JAPAN

10:50-11:10	A-I-0422 Iridium Oxide Based Thin Film as an Electrode for Bio-Interface Applications **Po-Chun Chen**[†*] Department of Materials and Mineral Resources Engineering, National Taipei University of Technology, Taipei, TAIWAN
11:10-11:30	A-I-0066 Fabrication of visible-light-transparent devices using NiO thin films **Mutsumi Sugiyama**[†*] Tokyo University of Science, 2641 Yamazaki, Noda, Chiba, 278-8510 JAPAN
11:30-11:45	A-O-0011 Dual-function electrochromic smart window based on PEDOT: PSS /graphene/ $CsWO_3$ for transmittance modulation and near infrared shielding **Kai-Sheng Hsiao**[†], Lung-Hao Hu[*] Department of Mechanical and Electro-Mechanical Engineering, National Sun Yet-Sen University, Kaohsiung, Taiwan, R.O.C.
11:45-12:00	A-O-0431 The Switching Improvement on Transition Temperature of ALD-Deposited MoO_x Cap for VO_2 Thermochromic Devices **Hsuan-Yu Lin**[1†], Jun-Yu Su[1], Pi-Chun Juan[1*], Wen-Hao Cho[2], and Chi-Chung Kei[2] [1]Department of Materials Engineering and Centre for Plasma and Thin Film Technologies, Ming Chi University of Technology, New Taipei 243, TAIWAN [2]National Applied Research Laboratories, Taiwan Instrument Research Institute, Hsinchu 300, TAIWAN
12:00-13:30	Lunch

Session A6. Chairs:
Prof. Yu-Ching Huang, Ming Chi University of Technology, TAIWAN
Prof. Ming-Hsien Li, National Chi Nan University, TAIWAN

13:30-13:50	A-I-0054 Effect of crown ether additive in doctor-bladed perovskite solar cells Peter Chen[1], Kuo-Wei Huang[1], Chen-Fu Lin[1], Raja Rajendran[1], Po-Tsung Hsieh[2], and **Ming-Hsien Li**[3†*] [1]Department of Photonics, National Cheng Kung University, Tainan 70101, TAIWAN [2]Core Facility Center (CFC), National Cheng Kung University, Tainan, TAIWAN [3]Department of Applied Materials and Optoelectronic Engineering, National Chi Nan University, Nantou, TAIWAN

13:50-14:10	A-I-0405 Enhancing the Reproducibility of Self-Assembled Monolayer-Based Perovskite Solar Cells by Interface Engineering at the Buried Interface **Chieh-Ting Lin**[1,2†*] [1]Department of Chemical Engineering, National Chung Hsing University, Taichung, TAIWAN [2]Innovation and Development Center of Sustainable Agriculture, National Chung Hsing University, Taichung City, 402, TAIWAN
14:10-14:30	A-I-0349 Towards Highly Efficient 4-Terminal Perovskite/Si Tandem Solar Cell **Yu-Ching Huang**[†*] Department of Materials Engineering, Ming Chi University of Technology, 243303, New Taipei City, TAIWAN
14:30-14:45	A-O-0195 Effect of Ag incorporation in the sulfurization after selenization (Ag,Cu)(In,Ga)$(S,Se)_2$ solar cell **Wei-Chih Lin**[†], Tzu-Ying Lin[*] Department of Materials Science and Engineering, National Tsing Hua University, Hsinchu, TAIWAN
14:45-15:00	A-O-0299 Transparent Low Moisture Permeable Coating for Encapsulating Perovskite Solar Cell **Chieh-Ming Tsai**[1†], Chia-Feng Li[1], Yu-Ching Huang[2], Feng-Yu Tsai[1] and Wei-Fang Su[1,2*] [1]Institute of Materials Science and Engineering, National Taiwan University, Taipei, Taiwan, R.O.C. [2]Department of Materials Engineering, Ming Chi University of Technology, New Taipei, Taiwan, R.O.C.
15:00-16:00	Break

Symposium B. Nanostructured and Nanocomposite Coatings

Conference Room: R201

Session B5. Chairs:
Prof. Po-Chun Chen, National Taipei University of Technology, TAIWAN
Dr. Chih Chen, National Yang Ming Chiao Tung University, TAIWAN

10:50-11:10	B-I-0209 Low contact resistivity Cu/SiO_2 hybrid bonding using (111)-oriented nanotwinned Cu **Chih Chen**[†*] Department of Materials Science and Engineering, National Yang Ming Chiao Tung University, Hsin-Chu, Taiwan 30010, TAIWAN
11:10-11:25	B-O-0101

	Facile Nanofabrication of SERS Substrate with Tunable Structure Color for High Enhancement Factor **C. Y. Yu**†, C. K. Chung* Department of Mechanical Engineering, National Cheng Kung University, Tainan 701, TAIWAN
11:25-11:40	B-O-0409 Fabrication of Nanorods structures of Surface-Enhanced Raman Substrate for Environmental and Biomedical Detection **Wei-Han Lo**†, Ting-Yu Liu*, Kuan-Syun Wang Department of Materials Engineering, Ming Chi University of Technology, New Taipei City 243303, TAIWAN
11:40-11:55	B-O-0503 Development of discarded DVDs reuse and transfer flexible 3D-SERS substrates by oblique angle deposition for wastewater pollutant detection. **Yu-Hsiang Huang**†, Yun-Chu Chen, Chia-Hsien Lin, Ting-Yu Liu * Department of Materials Engineering, Ming Chi University of Technology, TAIWAN
11:55-13:30	Lunch
Session B6. Chairs: **Prof. Kuan-Che Lan, National Tsing Hua University, TAIWAN** **Dr. Leh-Ping Chang, National Yang Ming Chiao Tung University, TAIWAN**	
13:30-13:45	B-O-0108 Nanoporous alumina for modifying the surface optical properties of ITO glass C. Y. Yu, Y. T. Tsai, **C. K. Chung**†* Department of Mechanical Engineering, National Cheng Kung University, TAIWAN
13:45-14:00	B-O-0233 A Metal-based Half Mirror With Green LED Mirror Tunnel Effect **Nan-Ming Lin**[1†*], Shih-Chang Shei[2], and Yen-Chun Yu[3] [1]Technology Research Institute, TYC Brother Industrial Co., Ltd, Tainan, TAIWAN [2]Department of Electrical Engineering, National University of Tainan, TAIWAN [3]Department of Electronic Engineering, Kao Yuan University, Kaohsiung, TAIWAN
14:00-14:15	B-O-0040 Piezo-Phototronic Nano-Newton Force Sensor based on Double Schottky ZnO Nanorod Arrays **Yi-Miao Lin**[1†],Yu-Liang Hsiao[1], Chuan-Pu Liu[1,2,3*] [1]Department of Materials Science and Engineering, National Cheng Kung University [2]Hierarchical Green-Energy Materials Research Center, National Cheng Kung University, TAIWAN [3]Academy of Innovative Semiconductor and Sustainable Manufacturing, National Cheng Kung University, TAIWAN
14:15-14:30	B-O-0163 Study of Co-intercalated Muscovite

	E-Han Li[†], Ying-Hao Chu[*] Department of Materials Science & Engineering, National Tsing Hua University, Hsinchu, TAIWAN
14:30-14:45	B-O-0061 Novel Layered Composite: Creation of Magnetism in Muscovite by Intercalation. **Bo-Sheng Chen**[†], Ying-Hao Chu[*] Department of Materials Science and Engineering, National Tsing Hua University, Hsinchu, TAIWAN
14:45-15:00	B-O-0362 Application of Fe_3O4@MoS_2 for electrocatalytic nitrogen reduction in the magnetic field **Shao-Che Wang**[1†], Chia-Chen Ho[2], Shao-Sian Li[1,2*] [1]Institute of Materials Science and Engineering, National Taipei University of Technology, TAIWAN [2]Department of Materials and Mineral Resources Engineering, National Taipei University of Technology, TAIWAN
15:00-16:00	Break

Symposium C. Semiconductor, Optoelectronic and Flexible Device Films

Conference Room: Lecture Hall

Session C5. Chairs:
Prof. Ju-Liang He, Feng Chia University, TAIWAN
Prof. Ludvik Martinu, University of Montreal, CANDAD

10:50-11:10	C-I-0475 Low Global Warming Gases for Plasma Etching Processes **Heeyeop CHAE**[1,2†*] [1]School of Chemical Engineering, Sungkyunkwan University (SKKU), Suwon, 16419, Republic of KOREA [2]Department of Semiconductor Convergence Engineering, Sungkyunkwan University (SKKU), Suwon, 16419, Republic of KOREA
11:10-11:30	C-I-0529 Multifunctional optical coatings for flexible substrates **Ludvik Martinu**[†*], O. Zabeida, B. Baloukas and J.E. Klemberg-Sapieha Department of Engineering Physics, Polytechnique Montreal, Montreal, QC H3T 1J4 CANADA
11:30-11:45	C-O-0322 Enhanced performance of p-n binary crystals in photocatalytic water splitting upon the aid of plasmonic coupling **Kun-Ta Lin**[†], Jr-Jeng Ruan[*] Department of Materials Science and Engineering, National Cheng Kung University, Tainan, TAIWAN

11:45-12:00	C-O-0380 Gas flow sputtering prepared Y_2O_3 for plasma etching resistance **Tzu-Chun Lin**[1†*], Ping-Yen Hsieh[1,2], Ying-Hung Chen[1,2], Ju-Liang He[1,2] [1]Department of Materials Science and Engineering, Feng Chia University, TAIWAN [2]Institute of Plasma, Feng Chia University, TAIWAN
12:00-13:30	Lunch

Symposium C. Semiconductor, Optoelectronic and Flexible Device Films

Conference Room: R303

Session C5. Chairs:
Prof. Chuan Li, National Yang Ming Chiao Tung University, TAIWAN
Prof. Chia-Feng Lin, National Chung Hsing University, TAIWAN

10:50-11:05	C-O-0187 Experimental Study for Vanadium Oxynitride Thin Films by Reactive Sputtering H. B. Liu[1], **Chuan Li** [1*†], J. H. Hsieh[2*] [1]Department of Biomedical Engineering, National Yang Ming Chiao Tung University, Taipei, Taiwan 11221, TAIWAN [2]Center for Plasma and Thin Film Technologies, Ming Chi University of Technology, Taishan, Taipei, Taiwan 24301, TAIWAN
11:05-11:20	C-O-0077 Fabrication of Bi_2O_2S Epitaxial Thin Films and Their Novel Optical Properties **Chuan Chuang**[†], and Ying-Hao Chu[*] Department of Materials Science and Engineering, National Tsing Hua University, Hsinchu 300044, TAIWAN
11:20-11:35	C-O-0456 Ultraconfined Space-Capped VLS-Grown of 2L S_V–$Mo_{1-x}V_xS_2$ for CO_2 Photoreduction **Mohammad Qorbani**[1,2†*], Pin-Pin Huang[3,4], Ying-Ti Hung[1,2,5], Ying-Ren Lai[1,2], Mao-Feng Tseng[6], Amr Sabbah[3,7], Tzu-Hsuan Feng[1], Yo-Hsun Liu[1,8], Mahmoud Kamal Hussien[3,9], Septia Kholimatussadiah[1,10], Chih-Yang Huang[1,2], Jia-Wei Lin[1,2], Michitoshi Hayashi[1,2*], Kuei-Hsien Chen[1,3*], Li-Chyong Chen[1,2,10*] [1]Center for Condensed Matter Sciences, National Taiwan University, TAIWAN [2]Center of Atomic Initiative for New Materials, National Taiwan University, TAIWAN [3]Institute of Atomic and Molecular Sciences, Academia Sinica, TAIWAN [4]Department of Chemistry, National Taiwan Normal University, Taipei 116, TAIWAN [5]Dept. of Materials Science and Engineering, National Taiwan University, TAIWAN [6]School of Electrical, Computer and Energy Engineering, Arizona State University, Tempe, AZ, 85287–5706, USA [7]Tabbin Institute for Metallurgical Studies, Tabbin, Helwan 109, Cairo 11421, EGYPT [8]Department of Materials Science and Engineering, National Taiwan University of Science and Technology, Taipei 106335, TAIWAN [9]Department of Chemistry, Faculty of Science, Assiut University, Assiut, EGYPT [10]Department of Physics, National Taiwan University, Taipei 10617, TAIWAN

11:35-11:50	C-O-0053 Non-volatile Modulation on the Electronic Potential of the 2D Bi_2O_2Se Layer via Ferroelectric Polarization **Yong-Jyun Wang**†, Ying-Hao Chu* Department of Materials Science & Engineering, National Tsing Hua University, Hsinchu, TAIWAN
11:50-13:30	Lunch

Symposium C. Semiconductor, Optoelectronic and Flexible Device Films

Conference Room: R205

Session C6. Chairs:
Prof. Wei-Sheng Liu, National Central University, TAIWAN
Prof. Chih-Ping Chen, Ming Chi University of Technology, TAIWAN

13:30-13:45	C-O-0107 High-efficiency perovskite solar cells with efficiencies exceeding 20% are developed by employing phenanthrene [9,10-D] imidazole-based undoped interfacial layer films. Yan-Ru Lin[1], Chih-Ping Chen[1*], Sheng-Yan Sie[1], **Chung-Ming Liu**[1†], Rajaratnam Ramanulam[2,3], Shin-Sheng Sun[3] [1]Department of Materials Engineering, Ming Chi University of Science and Technology, New Taipei City, TAIWAN [2]Taiwan International Graduate Program-SCST, Department of Applied Chemistry, National Yang Ming Chiao Tung University, Hsinchu, TAIWAN [3]Institute of Chemistry, Academia Sinica, Taipei, TAIWAN
13:45-14:00	C-O-0184 Application of Non-fullerene Acceptor Materials in Electron Transport Layer Additive of High-performance Perovskite Solar Cells **Chein-Yu Lung**[1†],Chih-Ping Chen[1*] Bing-Huang Jiang[1], Zhong-En Shi[1],Chi-Wei Lin[1], Tzu-Ti Liu[1], Ken-Tsung Wong[2] [1]Department of Materials Engineering, Ming Chi University of Technology, TAIWAN [2]Department of Chemistry, National Taiwan University, Taipei, TAIWAN
14:00-14:15	C-O-0280 Enhancing the efficiency of non-fullerene organic solar cells through a processing method that using a non-halogenated solvent Yang-Yen Yu*, **Zih-Ruei Huang**†, Kai-Yu Shih Department of Materials Engineering, Ming Chi University of Technology, TAIWAN
14:15-14:30	C-O-0286 Research on the Application of the Interface Layer of Small Molecule Materials in High-efficiency Inverted-Perovskite Solar Cells Yang-Yen Yu*, **You-Wei Cao**†, Kai-Yu Shih Department of Materials Engineering, Ming Chi University of Technology, TAIWAN

14:30-14:45	C-O-0303 Study on ultra-thin metal transparent electrode in visible light absorbing semi-transparent organic solar cells Yang-Yen Yu[*], **Anjali Chandel**[†], Chun-Chieh Lee Department of Materials Engineering, Ming Chi University of Technology, TAIWAN
14:45-15:00	C-O-0354 A Small-Molecule Donor with Versatility for Fabricating High-Performance Ternary Organic Photovoltaics Based on Sequential Solution Deposition. Yan-Ru Lin[1], Chih-Ping Chen[1*], Bing-Huang Jiang[1], **Pei-Jui Weng**[1†], Yuan-Jay Chang[2] [1]Department of Materials Engineering, Ming Chi University of Technology, TAIWAN [2]Department of Chemistry, Tunghai University, Taichung, TAIWAN
15:00-15:15	C-O-0517 Terahertz optoelectronics using ultrafast carrier lifetime in germanium thin films **Dhanashree Chemate**[1,3†*], Vivek Dwij[2], Samuel John[2], Gaurav Mota[3], Niranajan Jadhav[3], Dhiraj Gupta[3], Shriganesh S Prabhu[2] [1]Indian Institute of Technology, Bombay, INDIA [2]Tata Institute of Fundamental Research, Mumbai, INDIA [3]Tata Institute of Fundamental Research, Hyderabad, INDIA
15:15-15:30	C-O-0008 Exploring the role of sulfur induced sputtering targets for the fabrication of Cu_2ZnSnS_4 absorber layer based thin film solar cells **Balaji Gururajan**[1,2†*], Wei-Sheng Liu[1], Balasundaraprabhu Rangasamy[2], Prasanna Sankaran[2], David McIlroy[3], Elena Echeverria[4] [1]Department of Electrical Engineering, Yuan Ze University, Chungli, TAIWAN [2]Department of Physics, PSG College of Technology, Coimbatore, INDIA [3]Department of Physics, Oklahoma State University, Stillwater, Oklahoma, USA [4]The Centre for Bright Beams, Cornell University, Ithaca, USA
15:30-16:00	Break

Symposium C. Semiconductor, Optoelectronic and Flexible Device Films

Conference Room: R303

Session C6. Chairs:
Prof. Chun-Yuan Huang, National Central University, TAIWAN
Prof. Hsiang Chen, National Chi Nan University, TAIWAN

13:30-13:45	C-O-0143 Application of an Automated Monitoring System for LED Degradation in Extreme Environments Shao-Jui Yang[1], Chih-Yuan Yu[1], Cheng-Shan Chen[1], **Yao-Hong Huang**[1†], Deng-Yi Wang[2], Chun-Yen Yang[3], You-Li Lin[1], Mou-Tuong Hon[1], Yaw-Wen Kuo[3], You-Lin Wu[3], Yew-Chung Sermon Wu[2], Hsiang Chen[1*]

	[1] Department of Applied Materials and Optoelectronic Engineering, National Chi Nan University, Puli, TAIWAN [2] Department of Materials Science and Engineering, National Yang Ming Chiao Tung University, Hsinchu, TAIWAN [3] Department of Electrical Engineering, National Chi Nan University, Puli, TAIWAN
13:45-14:00	C-O-0466 Vertically Aligned hollow-GaN grown by single step using CVD for Multisource Energy Harvest by Piezo-Photo-Pyroelectric Coupled Nanogenerators **J.V.Spandana Rao**[†], C.P.Liu[*] National Cheng Kung University, Tainan, TAIWAN
14:00-14:15	C-O-0392 All-Solution-Processed Inverted Quantum Dot-Light-Emitting Diodes by Architecting the Functionized Polyethylenimine Ethoxylated (PEIE) Layer **Li-Tzu Wang**[†], Yu-Hsiang Lin, Shih-Chia Huang, Chen-You Chen, Xiang-Ming Yang, Chun-Yuan Huang[*] Department of Applied Science, National Taitung University, Taitung, TAIWAN
14:15-14:30	C-O-0379 Effect of Target Power on the Microstructure and Properties of Cu-Ag Thin Films **Yu-Chieh Wang**[†], Fan-Yi Ouyang[*] Department of Engineering and System Science, National Tsing Hua University, Hsinchu, Taiwan 30013, TAIWAN
14:30-14:45	C-O-0068 Fabrication of superconductive muscovite via MgB_2 intercalation **Shu-Hua Kuo**[†], Ying-Hao Chu[*] Department of Materials Science and Engineering, National Tsing Hua University, Hsinchu 30013, Taiwan, R.O.C.
14:45-15:00	C-O-0353 Ternary near-infrared organic photodetector with high-efficiency sensing capability **Yi-Yang Hsu**[†], Chih -Ping Chen[*], Bing-Huang Jiang, Fu-Chun Hsiao Department of Materials Engineering, Ming Chi University of Technology, TAIWAN
15:00-15:15	C-O-0079 Mn_4N(111) film grown on glass substrate with AlN/Al buffer layer and its magnetic properties **Yun Si**[†], Takashi Harumoto, Ji Shi[*] Department of Materials Science and Engineering, Tokyo Institute of Technology, 2-12-1 O-okayama, Meguro, Tokyo 152-8552, JAPAN
15:15-15:30	C-O-0213 The Physical and Electrical Characterizations of Al/MoO_x/*p*-Si (MIS) Structures De-Hao Li, Hsuan-Yu Lin, **Cheng-Wei Lin**[1†], Pi-Chun Juan[1*], Sheng-Chi Chen[1], Wen-Hao Cho[2], and Chi-Chung Kei[2] [1]Department of Materials Engineering and Centre for Plasma and Thin Film Technologies, Ming Chi University of Technology, New Taipei 243, TAIWAN

	[2] National Applied Research Laboratories, Taiwan Instrument Research Institute, Hsinchu 300, TAIWAN
15:30-16:30	Break

Symposium D. Tribological and Protective Coatings

Conference Room: R202

Session D5. Chairs:
Prof. Fan-Bean Wu, National United University, TAIWAN
Prof. Simizu Tetuhide, Tokyo Metropolitan University, JAPAN

10:50-11:10	D-I-0009 Mechanical and Electrochemical Properties of Polymer derived Silicon Oxycarbonitride ceramic film by Preceramic Polysilazane Precursor Coating **Lung-Hao Hu**[†*] Department of Mechanical and Electro-Mechanical Engineering, National Sun Yat-sen University, Kaohsiung, TAIWAN.
11:10-11:25	D-O-0030 High Temperature Properties of High-Speed PVD Deposited Thick α- and γ-Al_2O_3 Coatings Kirsten Bobzin, Christian Kalscheuer, Max Philip Moebius, **Parisa Hassanzadegan Aghdam**[†*] Surface Engineering Institute, RWTH Aachen University, Kackertstraße 15, 52072 Aachen, GERMANY
11:25-11:40	D-O-0171 Effect of carbon nano material on the resistance and adhesion of pogo pin at different thicknesses of titanium adhesive layer **Hsuan-Ting Lin**[1†], Chin-Pao Chuang[1], Chin -An Wang[1], Ming Jeng Huang[2], Shih Chun Tseng[3*] [1]Department of Mechanical Engineering, Minghsin University of Science and Technology, 30401 Hsinchu, TAIWAN [2]C.C.P. Contact Probes Co., Ltd., Taiwan, R.O.C. [3]Department of Mechanical Engineering, National United University, TAIWAN
11:40-11:55	D-O-0173 Improved durability of water lubrication characteristics exhibited by Si-DLC film supporting silica nanoparticles **Kuzuya Shuzo**[1†], Kousaka Hiroyuki[2*], Horiba Natsuo[3*] [1]Graduate School of Natural Science and technology, Gifu University, Gifu city, JAPAN [2]Department of Mechanical Engineering, Gifu University, Gifu city, JAPAN [3]Sanyu Tokushu Seiko Co. Miyoshi City, JAPAN
11:55-13:30	Lunch

Session D6. Chairs:

Prof. Fan-Bean Wu, National United University, TAIWAN **Prof. Chau-Chang Chou, National Taiwan Ocean University, TAIWAN**	
13:30-13:50	D-I-0446 CONTROL OF COMPOSITION, MICROSTRUCTURE, AND PROPERTIES OF SPUTTER-DEPOSITED TRANSITION METAL DIBORIDES **Ivan Petrov**[1,2†*], Babak Bakhit[2,3],Johanna Rosen[2],Lars Hultman[2],Greg Greczynski[2] [1]Materials Research Laboratory and Materials Science Department, University of Illinois at Urbana Champaign, Illinois 61801, USA [2]Department of Physics (IFM), Linköping University, SE-581 83 Linköping, SWEDEN [3]Department of Materials Science & Metallurgy, University of Cambridge, UK
13:50-14:05	D-O-0252 Study on Mechanical Properties and Corrosion Resistance of TiZrNbTaFeC High Entropy Alloy Carbide Coatings **Ismail Rahmadtulloh**[1,2†], Chaur-Jeng Wang[1], Bih-Show Lou[3,4], Jyh-Wei Lee [2,5,6,7*] [1]Department of Mechanical Engineering, National Taiwan University of Science and Technology, Taipei TAIWAN [2]Department of Materials Engineering, Ming Chi University of Technology, TAIWAN [3]Chemistry Division, Center for General Education, Chang Gung University, TAIWAN [4]Department of Orthopaedic Surgery, New Taipei Municipal TuCheng Hospital, Chang Gung Memorial Hospital, TAIWAN [5]Center for Plasma and Thin Film Technologies, Ming Chi University of Technology, New Taipei, TAIWAN [6]Department of Mechanical Engineering, Chang Gung University, Taoyuan, TAIWAN [7]High Entropy Materials Center, National Tsing Hua University, Hsinchu, TAIWAN
14:05-14:20	D-O-0428 Super-Hard Nanodiamond Composite Coatings Deposited via Eco-Friendly PVD Coaxial Arc Plasma Deposition on WC−Co Substrates for Cutting Tool Advancements **Mohamed Ragab Diab**[1,2†*], Mohamed Egiza[2,3*], Koki Murasawa[1,4], Hiroshi Naragino[1], and Tsuyoshi Yoshitake[1*] [1]Department of Applied Science for Electronics and Materials, Kyushu University, Kasuga, Fukuoka 816-8580, JAPAN [2]Department of Mechanical Engineering, Kafrelsheikh University, EGYPT [3]School of Engineering, Robert Gordon University, Aberdeen AB10 7GJ, UK [4]OSG Corporation, 3-22 Honnogahara, Toyokawa, Aichi 442-8543, JAPAN
14:20-14:35	D-O-0433 Effect of sodium tungstate on growth mechanism and wear resistance of micro-arc oxidation coatings formed on AZ31 magnesium alloy Peng-Shu Hsu[1], **Shih-Yen Huang**[1†], Yu-Ren Chu[1], Shun-Han Yang[1], I-Chung Cheng[2], Jyh-Wei Lee[3], Yueh-Lien Lee[1*] [1]Department of Engineering Science and Ocean Engineering, National Taiwan University, Taipei, TAIWAN [2]Department of Mechanical Engineering, National Taiwan University, Taipei, TAIWAN [3]Department of Materials Engineering, Ming Chi University of Technology, TAIWAN
14:35-14:50	D-O-0073

	Synthesis and characterization of the ceramic refractory metal high entropy nitride and carbide thin films from Cr-Hf-Mo-Ta-W system **P. Soucek**[1†*], T. Stasiak[1], S. Debnarova[1], V. Bursikova[1], N. Koutna[2], S. Lin[2], Zs. Czigany[3], K. Balazsi[3], P. Vasina[1] [1]Masaryk University, Brno, CZECH REPUBLIC [2]TU Wien, Vienna, AUSTRIA [3]Centre for Energy Research, Budapest, HUNGARY
14:50-15:05	D-O-0239 High temperature age hardening mechanism of multilayered AlCrBN/AlTiSiN hard coatings **He-Qian Feng**[†], Min-Xin Shi, Tsung-Hung Tsai, Yin-Yu Chang[*] Department of Mechanical and Computer-Aided Engineering, National Formosa University, Yunlin 632, TAIWAN
15:05-15:20	D-O-0023 High Al content TiAlCrSiN HPPMS coatings for cutting tool applications Kirsten Bobzin, Christian Kalscheuer, **Muhammad Tayyab**[†*] Surface Engineering Institute, RWTH Aachen University, Aachen, GERMANY
15:20-15:35	D-O-0287 Effects of TiB_2 contents on the properties of AlCrNbSiTiBN high entropy alloy nitride coatings **Igamcha Moirangthem**[1,2†], Bih-Show Lou[3,4], Chaur-Jeng Wang[1], Jyh-Wei Lee[2,5,6,7*] [1]Department of Mechanical Engineering, National Taiwan University of Science and Technology, Taipei TAIWAN [2]Department of Materials Engineering, Ming Chi University of Technology, TAIWAN [3]Chemistry Division, Center for General Education, Chang Gung University, TAIWAN [4]Department of Orthopedic Surgery, New Taipei Municipal TuCheng Hospital, Chang Gung Memorial Hospital, TAIWAN [5]Center for Plasma and Thin Film Technologies, Ming Chi University of Technology, New Taipei, TAIWAN [6]High Entropy Materials Center, National Tsing Hua University, Hsinchu, TAIWAN [7]Department of Mechanical Engineering, Chang Gung University, Taoyuan, TAIWAN
15:35-16:00	Break

Symposium F. Metallic and High-Entropy Alloy Coatings

Conference Room: R205

Session F5. Chairs:
Prof. Heng-Jui Liu, National Chung Hsing University, TAIWAN
Prof. Shih-Hsun Chen, National Taiwan University of Science and Technology, TAIWAN

10:50-11:05	F-O-0110 Supercritical CO_2-Assisted Ni-P Electroless Plating of UHMW-PE Fibers

	Hikaru Kondo[1†*], Tomoyuki Kurioka[1], Wan-Ting Chiu[1], Hwai En Lin[2], Chun-Yi Chen[1], Tso-Fu Mark Chang[1], Yamaguchi Machiko[3], Arisa Jinno[3], Hiromichi Kurosu[3], Masato Sone[1] [1]Institute of Innovative Research, Tokyo Institute of Technology, JAPAN [2]Dept. of Mechanical Engineering, National Taipei University of Technology, TAIWAN [3]Cooperative Major in Human Centered Engineering, Nara Women's University, JAPAN
11:05-11:20	F-O-0520 Optimization of plasma-electrolytic polished surface on pitting resistance in 304 stainless steel **Chun-Wei Chang**[1†], Neng-Kun Zheng[1,2*] and Chuan-Ming Tseng[1,3*] [1]Department of Materials Engineering, Ming Chi University of Technology, TAIWAN [2]Department of Mechanical Engineering, National Taiwan University of Science and Technology, Taipei, TAIWAN [3]Center for Plasma and Thin Film Technologies, Ming Chi University of Technology, New Taipei, TAIWAN
11:20-11:35	F-O-0414 Applications of Ni and Ag Metallizations at the Solder/Cu Interfaces in Advanced High-power Automobile Interconnects: An Electromigration Study **Meng-Chun Chiu**[1†], Min-Yan Tsai[2], Shan-Bo Wang[2], Yung-Sheng Lin[2], Chien-Lung Liang[1*] [1]Department of Materials Science and Engineering, National Taiwan University of Science and Technology, Taipei, TAIWAN [2]Product Characterization, Corporate Research and Development (CRD), Advanced Semiconductor Engineering (ASE) Group, Kaohsiung, TAIWAN
11:35-11:50	F-O-0396 Nonequal molar AlCrNbSiBC High Entropy Nitride Coating with superior oxidation resistance deposited by DC Reactive Magnetron Sputtering **Pei-Yen Huang**[1†], Chia-Ling Tsai[1], Che-Wei Tsai[1,2*], and Jien-Wei Yeh[1,2] [1]Dept. of Materials Science and Engineering, National Tsing Hua University, TAIWAN [2]High Entropy Materials Center, National Tsing Hua University, Hsinchu, TAIWAN
11:50-13:30	Lunch

Wednesday, November 15, 2023	
09:00-11:30	Registration, Company Exhibition
Conference Room: Lecture Hall **Keynote Session (V) and (VI) Chairs: Prof. Ludvik Martinu, Prof. Jyh-Ming Ting**	
09:00-09:40	**Keynote Session (V)** Topic: Multifunctional Protective Coatings for Harsh Environments Prof. **Jolanta Klemberg-Sapieha** Department of Engineering Physics, Polytechnique Montreal, Canada
09:40-10:20	**Keynote Session (VI)** Topic: AI-Enhanced Sensors and Applications from AIoT to Metaverse Prof. **Chengkuo Lee** Department of Electrical and Computer Engineering, National University of Singapore, Singapore
10:40	Closing, Student Awards, and Raffle Draw

TACT 2023 Program for Poster Session (I)

17:00 – 18:30 on Monday, November 13, 2023

(Posters assembled before 13:30. Presenters are required to stand near their poster during Poster Session)

Poster Number	Title	Corresponding Author	Affiliation	All-authors	Presenter
Symposium A: Coatings for Sustainable Energy					
A-P-100	Thin-film Solid-state Electrolyte Coating for the Lithium–Sulfur Battery Anode Stabilization	Sheng-Heng Chung	National Cheng Kung University, Taiwan	Yu-Chen Wang, Sheng-Heng Chung	Yu-Chen Wang
A-P-104	Improving Electrochemical Stability via Mixed Phase of Li_6PS_5Cl-$Li_{6.4}La_3Zr_{1.4}Ta_{0.6}O_{12}$ Composite Solid Electrolytes for All-Solid-State Lithium Battery Applications	Wei-Ren Liu	Chung Yuan Christian University, Taiwan	Rasu Muruganantham, Hsin-Wei Wu, Yu Lo, Wei-Ren Liu	Rasu Muruganantham
A-P-176	Phosphorus-doped SiO_x wrapped in 3D porous graphene aerogel as high performance anode materials for lithium-ion batteries	Wei-Ren Liu	National Cheng Kung University, Taiwan	Hsiao-Ching Wang and Wei-Ren Liu	Hsiao-Ching Wang
A-P-283	Preparation of $MoS_2/Ti_3C_2T_x$ Composite Material for Supercapacitors by High Pressure Hydrothermal Method	Jung-Jie Huang	Da-Yeh University, Taiwan	Yu-Jie Lin, Yu-Xuan Zhang, Yu-Wu Wang, Jung-Jie Huang	Yu-Jie Lin
A-P-293	Lead-free $Cs_2AgBiBr_6$ double perovskite solar cells with high open-circuit voltage by spray coating	Chih-Liang Wang	National Tsing Hua University, Taiwan	Ting-Jui Chang, Hsin-Jung Wu, Chih-Liang Wang	Ting-Jui Chang
A-P-371	Study on Enhancing Houttuynia Cordata Thunb. Extract Attachment and Achieving Antibacterial Effects through Plasma Polymerization Grafting on Modified Polydimethylsiloxane using Atmospheric Pressure Plasma Treatment	Yu-Lin Kuo	National Taiwan University of Science and Technology, Taiwan	Ling Lin, Yun-Yun Chen, Yu-Lin Kuo	Ling Lin
A-P-374	High Entropy Oxide Cathode for Lithium-Sulfur Battery	Jyh-Ming Ting	National Cheng Kung University, Taiwan	Yi-Hsuan Wu,Chih-Yu Liu, Sheng-Heng Chung, Yu-Hsun Tseng, Dr. Thi Xuyen Nguyen, Jyh-Ming Ting	Chih-Yu Liu
A-P-441	An Electrochemical Impedance Study on High Entropy Oxide Electrodes for Water Oxidation	YongMan Choi	National Yang Ming Chiao Tung University, Taiwan	Yu-Wei Lin, Chun-Wei Chang, Bu-Jine Liu, Tai-Hsin Yin, YongMan Choi	Yu-Wei Lin

Poster Session (I) 17:00 – 18:30 on Monday, November 13, 2023

Poster Number	Title	Corresponding Author	Affiliation	All-authors	Presenter
A-P-442	An Investigation of Spin-Coated Nanoscale Electrodes for Water Electrolysis in Acidic Media	YongMan Choi	National Yang Ming Chiao Tung University, Taiwan	Chun-Wei Chang, Li-Cheng Huang, Yi-Syuan Li, Changsik Choi, YongMan Choi	Chun-Wei Chang
A-P-484	Photoelectrochemical Response of $SrTiO_3/TiO_2/TiN$ Heterostructure Thin Films Prepared by Hydrothermal-Galvanic Couple Synthesis with Post-Annealing Treatment	Fu-Hsing Lu	National Chung Hsing University, Taiwan	Yu-Tone Chien, Fu-Hsing Lu	Yu-Tone Chien
A-P-486	Photoelectrochemical Enhancement via Oxidation of Air-based Sputtered Titanium Nitride Films under Controlled Atmospheres	Fu-Hsing Lu	National Chung Hsing University, Taiwan	Guan-Sheng Wang, Xin-Xian Yang, Fu-Hsing Lu	Guan-Sheng Wang
A-P-92	Temperature effects on sodium-ion storage behaviors and electrochemical performance of hard carbon microspheres derived from phenolic resin as potential anode materials for sodium ion batteries	Wei-Ren Liu	Chung Yuan Christian University, Taiwan	Zhi-Ting Liu, Wei-Ren Liu	Zhi-Ting Liu
A-P-94	$Li_{1.3}Al_{0.3}Ti_{1.7}(PO_4)_3$ solid electrolytes synthesized by microwave-assisted hydrothermal reaction for Li all-solid-state battery applications	Wei-Ren Liu	Chung Yuan Christian University, Taiwan	Cheng-En Yu and Wei-Ren Liu	Cheng-En Yu
A-P-99	An Electrospun Sandwiched – Structural Multi-layered Membrane-based Gel Polymer Electrolyte for Lithium–Sulfur Batteries	Sheng-Heng Chung	National Cheng Kung University, Taiwan	Tzu-Ching Chan, Sheng-Heng Chung	Tzu-Ching Chan

Poster Session (I) 17:00 – 18:30 on Monday, November 13, 2023

Poster Number	Title	Corresponding Author	Affiliation	All-authors	Presenter
Symposium B: Nanostructured and Nanocomposite Coatings					
B-P-38	Enhancing the Photoelectric Properties of ITO/Ag/ITO Multilayer Electrodes Using Taguchi Method and Laser Annealing Technique	Keh-Moh Lin	Southern Taiwan University of Science and Technology, Taiwan	Keh-Moh Lin, Ting-Rong Zhang, Wen-Tse Hsiao	KEH-MOH Lin
B-P-123	Catalytic Activity of Heterogeneous Atomic Metal Clusters Decorated Polyaniline for Electrochemical Oxidation of 1-Propanol	Yoshida Shohei	Tokyo Institute of Technology, Japan	Tomoyuki Kurioka, Chun-Yi Chen, Parthojit Chakraborty, Yung-Jung Hsu, Takamichi Nakamoto, Masato Sone, Tso-Fu Mark Chang	Yoshida Shohei
B-P-145	Flexible Negative Pyramid Microarrays Coated with Silver Nano-islands for SERS Detection	LIU, TING-YU	Ming Chi University of Technology, Taiwan	Chia-Hsien, Lin Ding-Jia, Yueh	Chia-Hsien Lin
B-P-151	Bioinspired Cactus Spine-Like Microfluidic SERS Chip with Self-Driving Capability in Biomedicine and Environmental Detection	Ting-Yu Liu	Ming Chi University of Technology, Taiwan	Ding-Jia Yueh, Ying-Jun Lin, Chia-Hsien Lin, Yu-Hsiang Huang, Ting-Yu Liu	Yueh Ding-Jia
B-P-16	The Ti doping effect on magnetic and microstructural of lower magnetic anisotropy CoCrPtRu-oxides layer in a perpendicular recording media	Jai-Lin Tsai	National Chung Hsing University, Taiwan	Li-Xiang Liu, Ting-Cheng Chang, Kuan-Chen Liu, Yi-Chen Chen, He-Ting Tsai, Jai-Lin Tsai	Li-Xiang Liu
B-P-161	Optical and Electrical Properties of SiC Added SiO_x Films for Light Emitting and Sensing Devices	Sota Iwasaki	Meiji University, Japan	Sota Iwasaki, Takamasa Nakamura, Hiroshi Katsumata	Sota Iwasaki
B-P-200	Segregation effects of doped VN, ZrN on magnetic properties and microstructure of FePt (BN, Ag, C) films	Jai-Lin Tsai	National Chung Hsing University, Taiwan	Tsung-Yi Chen, Jhih-Hong Lin, Yu-Chun Lin, Jyun-you Chen	Tsung-Yi Chen
B-P-217	The effect of duty cycle and nitrogen flow rate on the mechanical properties of (V,Mo)N coatings deposited by high-power pulsed magnetron sputtering	Jia-Hong Huang	National Tsing Hua University, Taiwan	Yiqun Feng, Tsai-Fu Chung, Chien-Nan Hsiao, Jia-Hong Huang	Yiqun Feng
B-P-242	Role of Mo metal Interlayer in γ-Mo_2N/Mo Bilayer Coatings on D2 Steel Deposited by High Power Pulsed Magnetron Sputtering	Jia-Hong Huang	National Tsing Hua University, Taiwan	Yun-Yang Sun, Yu-Che Fang, Jia-Hong Huang	Yun-Yang Sun
B-P-301	Control of Tribological Behavior of a Hard Coating by Adjusting Working Pressure during Deposition - Using TiN Coatings on D2 Steel as a Model System	Jia-Hong Huang	National Tsing Hua University, Taiwan	I-Sheng Ting, Jia-Hong Huang	I-Sheng Ting

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Poster Number	Title	Corresponding Author	Affiliation	All-authors	Presenter
B-P-312	Preparation of PCN/Ni-Fe LDH DSNCs/TiO_2 nanocomposite for photoelectrochemical immunosensor of human chorionic gonadotropin	Ren-Jie Chung	National Taipei University of Technology, Taipei, Taiwan	Yo-Li Yeh, Yu-Ting Liao, Rajalakshmi Sakthivel, Ren-Jie Chung	Yo-Li Yeh
B-P-313	A patterned bifunctional metallic thin film for both refractive index sensor and surface enhanced infrared absorption substrate	Tsung-Yu Huang	Ming Chi University of Technology, Taiwan	Tsung-Yu Huang and Sin-You Chen	Sin-You Chen
B-P-323	Effect of substrate bias voltage on the residual stress and wear resistance of TiN coating on the Ti_6Al_4V alloy deposited with UBMS and HCD-IP system	Kuan-Che Lan	National Tsing Hua University, Taiwan	Kuan-Che Lan, An-Jia Chen	Ching-Cheng Chen
B-P-331	Au@ZIF-67 Metal-Organic Framework Nanocomposites for High Sensitivity SERS Sensor in Environmental Detection	Ting-Yu Liu	National Taiwan University of Science and Technology, Taiwan	Guang-Zhi Peng, Ting-Yu Liu, Ming-Chien Yang, Kuan-Syun Wang, Chen-Yang Lin	Peng Guang Zhi
B-P-394	High sensitivity achieved by integration of broadband metamaterial absorber and molecule functional group absorption	Tsung-Yu Huang	Ming Chi University of Technology, Taiwan	Tsung-Yu Huang and Xue-Shun Lee	Xue-Shun Lee
B-P-410	A facile method to prepare a high-performance metal nanoarray electrodes	Hsin Her Yu	National Formosa University, Taiwan	Xu-Rui Hong, Hsu-Feng Lee, Hsin Her Yu	Xu-Rui Hong
B-P-411	Au Nano-Island coated Laser-Scribed Graphene as EC-SERS chips for Biomedical and Illicit Drug Detection	YU-JU CHU	Ming Chi University, Taiwan	YU-JU CHU, Yun-Chu Chen, Ting-Yu Liu ,Yuh-Lin Wang	YU-JU CHU
B-P-426	Surface Engineering of 2D material-Ir nanosheet for Energy Photocatalysis and Electrocatalysis reaction	Po-Chun Chen	National Taipei University of Technology, Taiwan	Yu-Cian Huang, Yang-Sheng Lu, Shao-Sian Li, Po-Chun Chen, Akichika Kumatani	Yu-Cian Huang
B-P-509	Research on the thermistor of titanium oxynitride films by the reactive gas pulsing technique	Li-Chun Chang	Ming Chi University of Technology, Taiwan	Li-Chun Chang, Po-Yi Cheng, Yueh-Sheng Chiang	Po-Yi Cheng
B-P-526	The study of silkworm-excrement-derived carbon quantum dots for feeding silkworms to produce brightly fluorescent silk.	Yun-Chu Chen	Ming Chi University of Technology, Taiwan	Ai-Wei Liu, Xin-Yun Lin, Jing-Xuan Liu, Pei-Jie Lee, Chien-Ming Chen, Yu-Ju Chu, Yun-Chu Chen, Chih-Yu Kuo	Ai-Wei Liu
B-P-56	Core-Shell Magnetic Mesoporous Silica Nanospheres with Gold Nanoparticles for SERS Rapid Bio-Detection	Ting-Yu Liu	National Taiwan University of Science and Technology, Taiwan	Hsuan-Ting Lin, Chien-Ming Chen, Ting-Yu Liu, Ming-Chien Yang	Hsuan-Ting Lin
B-P-80	Impact of Interfacial SiO_2 Layers on the Photovoltaic Characteristics of n-type Nanocrystalline β-$FeSi_2$ Embedded in Polycrystalline Si Formed on p-type Si Substrates	Kenta Yoshimrua	Meiji University, Japan	Kenta Yoshimura, Takumi Kidokoro, Hiroshi Katsumata	Kenta Yoshimura
B-P-82	Discover the Behavior of Iron Deposition on the Surface Structure and Electrical Properties of $CrBr_3$ by STM/S	Bu-Wei Huang	National Taiwan Normal University, Taiwan	Bu-Wei Huang, Yuan-Ju Chang, Yu-Chieh Lo, Tsu-Yi Fu	Bu-Wei Huang

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Poster Number	Title	Corresponding Author	Affiliation	All-authors	Presenter
Symposium C: Semiconductor, Optoelectronic and Flexible Device Films					
C-P-134	The Influence of Ar-N_2/O_2 Flow Ratio on the Types of Electrical Conductivity in Cu and N co-doped ZnO Films formed by RF Magnetron Co-Sputtering	Masaki Tanaka	Meiji University, Japan	Masaki Tanaka, Hiroshi Katsumata	Masaki Tanaka
C-P-164	Evaluation of the Effects of Structural Parameters on External Quantum Efficiency of Si/Mg_2Si Heterojunction Photodiodes Using Device Simulation	Keisuke Asano	Meiji University, Japan	Keisuke Asano, Hiroshi Katsumata	Keisuke Asano
C-P-257	Vanadium-doped indium tin oxide window layer in Sb_2Se_3 solar cell	Yi-Cheng Lin	National Changhua University of Education, Taiwan	Jun-Han Lin, Ching-Chuan Cheng, Yi-Cheng Lin	Ching-Chuan Cheng
C-P-258	Bilayer molybdenum contact prepared via high-power pulsed magnetron sputtering: effects of substrate bias	Rui-En Hu	National Changhua University of Education, Taiwan	Cheng-Xun Li, Rui-En Hu, Yi-Cheng Lin	Rui-En Hu
C-P-264	A Comparative Study of Homoepitaxial Growth of (100) Single Crystal Diamond on HPHT and CVD Substrates	Li Chang	National Yang Ming Chiao Tung University, Taiwan	Tzu-I Yang, Yi Chou, Kun-An Chiu, Chun-Hua Chen, Li Chang	Tzu-I Yang
C-P-268	Fabrication of graphene quantum dots and their emission properties in microcavities	Takayuki Kiba	Kitami Institute of Technology, Japan	Yuto Masuda, Takayuki Kiba, Midori Kawamura	Yuto Masuda
C-P-275	Sliver thin film monopole antenna by screen printing method for Bluetooth/ 5G Sub-6/X-band multi-frequency	Jung-Jie Huang	Da-Yeh University, Taiwan	Da-Zhan Huang, Yun-Shao Cho, Jui-Yu Wang, Jung-Jie Huang	Da-Zhan Huang
C-P-296	Adhesion of Post-thermal Treatment on Sputtering Copper Layer to the Transparent Polyimide Interfacial Layer	Mei-Hui Tsai	National Chin-Yi University of Technology, Taiwan	Chia-Chi Chang,Yuan-Nan Tsai ,Mei-Hui Tsai	Chia-Chi Chang
C-P-308	Adhesive properties of deposited Cu films on colorless polyimide using High Power Impulse Magnetron Sputtering System	Mei-Hui Tsai	Lunghwa University of Science and Technology, Taiwan	Yuan-Nan Tsai, Hsin-Yo Chen, I.-Hsiang Tseng, Jyh-Wei Lee, Mei-Hui Tsai, Ming-Syuan Li, Chih-Hsing Wang, Chuen-Ming Gee	Yuan-Nan Tsai
C-P-314	Preparation of $CuCrO_2$ Thin Films via Spin-Coating Method with Varying PVP Concentrations	Te-Wei Chiu	National Taipei University of Technology, Taiwan	Homg-Ming Su, Chung-Lun Yu	Homg-Ming Su

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Poster Number	Title	Corresponding Author	Affiliation	All-authors	Presenter
C-P-35	The Characterizations of MoS_2 Thin Films Deposited at Different Temperatures by Magnetron Sputtering	Ing-Song Yu	National Dong Hwa University, Taiwan	Pin-Syuan Su, Chih Chao, Ing-Song Yu	Pin-Syuan Su
C-P-355	Graphene/Si heterojunction as catalytic photocathode for photovoltaic-assisted ammonia production	Shao-Sian Li	National Taipei University of Technology, Taiwan	Hsing-Wen Wu, Ang-Hsi Yeh, Peng-Ying Huang	Hsing-Wen Wu
C-P-359	Application of Parylene C Transfer-printed Graphene in Flexible Wearable Sensors	Po-Chun Chen	National Taipei University of Technology, Taiwan	Zhu-Hsuan Li	Zhu-Hsuan Li
C-P-360	Bifacial illumination of semi-transparent organic photovoltaic	Yu-Ching Huang	National Taipei University of Technology, Taiwan	Zih-Ting Chen, Yu-Ching Huang, Chia-Feng Li, Ssu-Yung Chung, Shao-Sian Li	Zih-Ting Chen
C-P-361	Intense pulsed light annealed electron transparent layer for indoor organic photovoltaics with large area process	Yu-Ching Huang	National Taiwan University, Taiwan	Chia-Feng Li, Yu-Ching Huang, Shih-Han Cheng, Ssu-Yung Chung, Feng-Yu Tsai	Chia-Feng Li
C-P-375	Photodetector Having Ultra-Broadband High Entropy Oxide Absorber Layer	Jyh-Ming Ting	National Cheng Kung University, Taiwan	I-Hsi Chen	I-Hsi Chen
C-P-390	Building VHF-CCP plasma etcher for 8-inch wafer	Hao-Ying Lin	Feng Chia University, Taiwan	Hao-Ying Lin, Ying-Hung Chen, Ping-Yen Hsieh and Ju-Liang He	Hao-Ying Lin
C-P-41	Mechanistic study of Photocatalytic CO_2 conversion to CH_4 by P-doped SnS_2 thin film.	Kuei-Hsien Chen	Academia Sinica National Taiwan University, Taiwan	Tadios Tesfaye Mamo, Mohammad Qorbani, Adane Gebresilasise Hailemariam, Amr Sabbah, Septia Kholimatussadiah, Li-Chyong Chen and Kuei-Hsien Chen	Tadios Tesfaye Mamo

Poster Number	Title	Corresponding Author	Affiliation	All-authors	Presenter
Symposium D: Tribological and Protective Coatings					
D-P-120	Effects of thickness ratio on the microstructure, mechanical properties and wear performance of CrN/ZrB_2 films deposited by magnetron sputtering	Yung-I Chen	National Taiwan Ocean University, Taiwan	Hsun-Sung Chiu;Yung-I Chen	Hsun-Sung Chiu
D-P-250	Influence of Nitrogen Flow Rate on Elevated Temperature Tribological Properties and Oxidation Behavior of Molybdenum Nitride Coatings	Jia-Hong Huang	National Tsing Hua university, Taiwan	Ruo-Syuan Chen, Te-Hsin Liu, Jia-Hong Huang	Ruo-Syuan Chen
D-P-251	Development of multilayer hard coatings on high-entropy alloys for mechanical applications	Yin-Yu Chang	National Formosa University Taiwan	Bo-Jun Lee，Xin-Yuan Li，He-Qian Feng，Kai-Cheng Yang，Ming-Hung Tsai ， Yin-Yu Chang	Bo-Jun Lee
D-P-255	The Oxidation Behavior of VMoN Thin Films Deposited by High Power Pulsed Magnetron Sputtering	Jia-Hong Huang	National Tsing Hua University, Taiwan	Pei-Fen Peng, Nan-Cheng Lai, Jia-Hong Huang	Pei-Fen Peng
D-P-346	Study of Heating Assisted Atmospheric Pressure Plasma Jet Nitriding of Tool Steel to Combat Wear and Corrosion	Yu-Lin Kuo	National Taiwan University of Science and Technology, Taiwan	Zhi-Yuan Zheng, Ming-Chun Tsai, Jhao-Yu Guo, Yu-Lin Kuo	Zhi-Yuan Zheng
D-P-347	Study of Wear and Impact Resistance of JIS SACM 645 Steel by Nitriding (H_2/N_2) using Atmospheric Pressure Plasma Jet	Yu-Lin Kuo	National Taiwan University of Science and Technology, Taiwan	Wen-Yuan Lee、Jui Hsu、Tsai-Ming Chun、Jha-Yu Guo、Yu-Lin Kuo	Wen-Yuan Lee
D-P-468	Exploring Microstructural Changes in 7075 Aluminum Alloy Oxide Coatings by Modulating Current Ratios Using Plasma Electrolytic Oxidation Method	Chen-Chia Chou	National Taiwan University of Science and Technology, Taiwan	Wei-Hsuan Lee, Juo-Wen Pai, Chen-Chia Chou	Chen-Chia Chou
D-P-480	Trace of MgO_2 presence during Plasma Electrolytic Oxidation (PEO) of AZ91D Mg Alloys in Bipolar Condition	Chen-Chia Chou	National Taiwan University of Science and Technology, Taiwan	MD JAHID HASAN, Chen-Chia Chou	Md Jahid Hasan
D-P-485	Air-Based Sputtering Deposition of TiN/TiN_xO_y Multilayer Films for Enhancing Mechanical Properties	Fu-Hsing Lu	National Chung Hsing University, Taiwan	Pin-Han Li, Fu-Hsing Lu	Pin-Han Li
D-P-523	Stress corrosion cracking and biocompatibility of plasma electrolytic oxidation coatings on AZ31B magnesium alloy: Effect of silver acetate additive	Chuan-Ming Tseng	Ming Chi University of Technology, Taiwan	Yu-Tse Sung, Sin-De Lin, Chuan-Ming Tseng	Sin-De Lin

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Poster Number	Title	Corresponding Author	Affiliation	All-authors	Presenter
D-P-13	Cellulose derivative dry lubricant coating: preparation and tribology performance	Shih-Chen Shi	National Cheng Kung University, Taiwan	Shih-Chen Shi, Xiao-Ning Tsai, Du-Yi Wang	Du-Yi Wang
D-P-199	Investigating the influence of thickness on the anti-tarnish and mechanical characteristics of decorative coatings composed of Ag/Au/TiO_2	Aparporn Sakulkalavek	King Mongkut's Institute of Technology Ladkrabang, Thailand	Rachsak Sakdanuphab, Sarocha Khanwaeo, Pichet Limsuwan, Aparporn Sakulkalavek	Rachsak Sakdanuphab
D-P-22	Substrate dependent cracking behavior of CrAlN coatings during nanoindentation	Muhammad Tayyab	Surface Engineering Institue, Germany	Kirsten Bobzin; Christian Kalscheuer; Muhammad Tayyab	Muhammad Tayyab
D-P-224	Modulation effect on mechanical properties of nanolayered MoN/MoWN coatings	F. B. Wu	National United University, Taiwan	W. C. Xu, J. Y. Hsu, Y. H. Liao, F. B. Wu	W. C. Xu
D-P-243	Microstructure and mechanical properties of Mo-Ta-N thin films	F. B. Wu	National United University, Taiwan	J. Y. Hsu, W. C. Xu, Y. H. Liao, F. B. Wu	J. Y. Hsu
D-P-244	Modification on polypropylene surface by atmospheric pressure plasma technique	F. B. Wu	National United University, Taiwan	C. K. Huang, S. F. Fan, F. B. Wu	C. K. Huang
D-P-256	Influence of duty cycle and vacuum annealing on microstructure of Ta-N coatings prepared by high-power pulse magnetron sputtering technique	F. B. Wu	National United University, Taiwan	Y. C. Chang, J. Y. Hsu, W. C. Hsu, Y. R. Jiang, F. B. Wu	F. B. Wu
D-P-26	Infuence of Al concentration on the structural and electrical properties of TiVCrAl alloy flms grown via magnetron co sputtering	Fuh Sheng Shieu	National Chung Hsing University, Taiwan	Yi-Qi Wang, Du Cheng Tsai, Zue Chin Chang, Erh Chiang Chen,Fuh Sheng Shieu	Yi-Qi Wang
D-P-28	Protecting silver jewelry from tarnish using AlN film coatings	Rachsak Sakdanuphab	King Mongkut's Institute of Technology Ladkrabang, Thailand	Aparporn Sakulkalavek	Aparporn Sakulkalavek
D-P-288	Adhesion of Thermally Sprayed Nickel Alloy Coatings for Use as Bond and Top Coatings	Chaiyasit Banjongprasert	Chiang Mai University, Thailand	Aradchaporn Srichen	Aradchaporn Srichen
D-P-343	Effect of interlayer design on adhesion strength and drill performance of AlCrCN coatings deposited by high power impulse magnetron sputtering	Chi-Lung Chang	National Taiwan University of Science and Technology, Taiwan	Fu-Chi Yang, Yu-Lin Kuo, Chi-Lung Chang	Fu Chi Yang
D-P-344	A combinatorial study of the high temperature tribological properties of AlCrSiTiN coatings	Jenq-Gong Duh	National Tsing Hua university, Taiwan	Sheng-Yu Hsu, Jenq-Gong Duh	Sheng-Yu Hsu

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Poster Number	Title	Corresponding Author	Affiliation	All-authors	Presenter
D-P-378	HiPIMS-DLC for improved performance of linear guide	Pin-Wen Wang	Feng Chia University, Taiwan	Pin-Wen Wang, Ping-Yen Hsieh, Ying-Hung Chen, Ju-Liang He	Pin-Wen Wang
D-P-432	Characterization of AlCrN coated on tungsten carbide substrate by a continuous plasma nitriding-HiPIMS hybrid process	Chi-Lung Chang	National Taiwan University of Science and Technology, Taiwan	Fu-Chi Yang, Jian-Fu Tang, Ting-Wei Liu, Yu-Lin Kuo, Chi-Lung Chang	Fu-Chi Yang
D-P-463	Tribological Performance of Si-doped Nanocomposite TiAlCrN Coatings	Jenq-Gong Duh	National Tsing Hua University, Taiwan	Sheng-Yu Hsu, Jenq-Gong Duh	Tan-Ling Wang
D-P-496	Ni-Based Alloy Coatings on Sliding Plate of Railway System Prepared by High-Velocity Oxygen Fuel	C. Banjongprasert	Rajamangala University of Technology Lanna, Chiang Mai, Thailand	M. Tuiprae, S. Moonngam, K. Chokethawai, S. Wirojanupatump, C. Banjongprasert	MAN TUIPRAE
D-P-497	Effects of different sodium saccharin addition level on the mechanical properties and co-deposition characteristics of Ni-Co-Al_2O_3 composite coatings	Pao-Chang Huang	National Defense University, Taiwan	Pao-Chang Huang, Yen-Chen Lin, An-Yu Cheng, Kung-Hsu Hou, Ming-Der Ger	Pao-Chang Huang
D-P-51	Effect of bias voltages and interlayer on microstructure, mechanical and adhesion properties of AlCrSiN coatings deposited by high power impulse magnetron sputtering	Chi-Lung Chang	Ming Chi University of Technology, Taiwan	Jian-Fu Tang, I-Hong Chen, Bo-Ruei Lu, Chi-Lung Chang	Bo-Ruei Lu
D-P-59	Improving the mechanical properties of aluminum alloys by electroless plating	Ruei-Chi Hsu, Ching-I Lin	National Taiwan University, Taiwan	Shih-Hung Tai, Ruei-Chi Hsu, Ching-I Lin	Ruei-Chi Hsu
D-P-62	Hard $Cr_{1-x}Al_xN$ coatings grown at room temperature by high-energy early arriving ion irradiation in HiPIMS	Sanath Kumar Honnali	Linköping University, Sweden	Sanath Kumar Honnali, Daniel Lundin, Grzegorz Greczynski, Per Eklund.	Sanath Kumar Honnali
D-P-65	The structural and mechanical characterizations of Sb-doped ZnO thin films	Sheng-Rui Jian	I-Shou University, Taiwan	Hou-Guang Chen, Sheng-Rui Jian, Yu-Min Hu, Phuoc Huu Le, I-Ju Teng, Wu-Ching Chou, Jenh-Yih Juang	Hou-Guang Chen

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Poster Number	Title	Corresponding Author	Affiliation	All-authors	Presenter
Symposium E: Organic and Biological Coatings					
E-P-130	Study on Electrospinning of Polyethylene Glycol Containing Lanthanum Chloride Antibacterial Applications	Shu -Chuan Liao	Da-Yeh University, Taiwan	Yu Qi Huang, Shu -Chuan Liao	Yuqi Huang
E-P-132	Silver-ContainingMAO Ceramic Coatings on Zirconium and multiple surface treatments for biomedicall Properties	Shu Chuan Liao	Da-Yeh University, Taiwan	Tzu-Chieh Huang, Shu Chuan Liao	Tzu-Chieh Huang
E-P-137	Electropolymerization of PEDOT:PSS with Graphene Oxide and Silver Nanoparticles for Antibacterial Coating and SERS Detection	Ting-Yu Liu	Ming Chi University of Technology, Taiwan	Hsiang-Ting Lan,Chun-Hao Wu, Ting-Yu Liu	Hsiang-Ting Lan
E-P-141	Evaluation of Osteogenic Properties of Bioactive Porous Titanium for Orthodontic Applications	Li CHANG	Graduate School of Dentistry, Tohoku University, Japan	Li Chang, Peng Chen, Takayuki Mokudai, Masakazu Kawashita, Hiroyasu Kanetaka，Itaru Mizoguchi	Li CHANG
E-P-193	Eco-friendly propylene glycol monomethyl ether acetate as the solvent and thickness analyses of acrylic thin films prepared by spin-coating	Chao-Ching Chang	Tamkang University, Taiwan	Ting-Wei Chu, Chao-Ching Chang	Ting-Wei Chu
E-P-232	Laser texturing and oxidation of TiZrTa thin films to improve the biocompatible performance of titanium alloys	Heng-Li Huang	National Formosa University, Taiwan	Ming-Xun Yang, Shu-Yan Lee, Yin-Yu Chang, Yi-Xuan Zhuang, Heng-Li Huang, Tzong-Ming Shieh, Ming-Tzu Tsai	Ming-Xun Yang
E-P-429	Colorful SERS Biochips Fabricated by Gold Nanoparticle Array with in-situ Thermal Evaporation	Ting-Yu Liu	Ming Chi University of Technology, Taiwan	Ding-Jia Yueh, Ying-Jun Lin, Ting-Yu Liu, Ting-Yin Chien, Kuan-Syun Wang, Yun-Chu Chen	Ding-Jia Yueh and Ying-Jun Lin
E-P-478	Forsterite Coatings on the Plasma Electrolytic Oxidized Ti_6Al_4V Alloy Using Sol-gel Method	Han-Cheol Choe	Chosun university, Korea	So-Yun Joo, Jong Kook Lee, Han-Cheol Choe	So-Yun Joo
E-P-495	Mechanical Alloyed Surface with Hydroxyapatite Particles on the PEO-coated Ti_6Al_4V Alloy for Dental Implant Use	Han Cheol Choe	Chosun university, Korea	Sidra Sadaf Nisar, S. Arun, Han-Cheol Choe	Sidra Sadaf Nisar
E-P-14	Circular economy of agricultural waste: exploration from novel materials, friendly environment to reproductive medicine	Shih-Chen Shi	National Cheng Kung University, Taiwan	Shih-Chen Shi, Fu-I Lu, Chia-Yih Wang	Shih-Chen Shi

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Poster Number	Title	Corresponding Author	Affiliation	All-authors	Presenter
E-P-152	Investigation of Combinatorial Coronene Nanofibers/PEDOT:PSS Active Layers on Organic Electrochemical Transistors for Tumor-related miRNA Detection	Yu-Sheng Hsiao	National Taiwan University of Science and Technology, Taiwan	Yi-Shiuan Li, Wen-Jing Lin, Yu-Sheng Hsiao	Yi-Shiuan Li
E-P-262	Relationship Between the Molecular Orientation and the Adhesive Strength at Metal/Epoxy polymer Interfaces	Miyamae Takayuki	Chiba University, Japan	Ikeda Misaki, Miyamae Takayuki	Ikeda Misaki
E-P-267	Improve the Soft Tissue Adhesion of Titanium by Surface Electrodeposition of Collagen and Calcium Phosphate	Peng Chen	Tohoku University, Japan	Motoki Uruma, Peng Chen, Tomoyo Manaka, Harumi Tsutsumi, Yusuke Tsutsumi, Hiroyasu Kanetaka, Takao Hanawa	Peng Chen
E-P-404	Improvement of unidirectional liquid transportation on the hydrophilic dart-shaped groove array by AP plasma treatment and APTES grafting	Po-Yu Chen	National Tsing Hua university, Taiwan	Ngoc Phuong Uyen Mai	Ngoc Phuong Uyen Mai
E-P-406	Comparison of blood compatibility, corrosion and erosion resistance of MAO-pretreated magnesium alloy deposited with graphene oxide and oxidized polydopamine composite coatings mixed with various pyrolytic diamine	Chau-Chang Chou	National Taiwan Ocean University, Taiwan	Wei-Siang Chen, Hsiang Wang, Jin-Wei Lin, Hung-Bin Lee, Chau-Chang Chou	Jin-Wei Lin
E-P-408	Highly Hydrophilic Films for Sweat Sensing in Smart Clothing	Ying-Chih Liao	National Taiwan University, Taiwan	Pei-Xuan Hong, Kai-Wen Chuang, Ying-Chih Liao	Pei-Xuan Hong
E-P-424	Magnesium coating on acid etched nanostructure titanium surface enhanced early osseointegration	Ying-Sui Sun	Taipei Medical University, Taiwan	Thu Ya Linn, Yi-Fan Wu, Ying-Sui Sun, Wei-Jen Chang	Thu Ya Linn
E-P-430	Antibacterial Self-cleaning Expanded PTFE Membranes Grafted with Tertiary and Quaternary Amino Groups by Line Source Atmospheric-Pressure Plasma	Ta-Chin Wei	Chung Yuan Christian University, Taiwan	Ting-Yu Liao, Yung Chang, Ta-Chin Wei	Ta-Chin Wei
E-P-435	Nitrogen plasma immersion ion implantation enhances biological responses to Zr-based bulk metallic glass alloy in dental implant applications	Her-Hsiung Huang	National Yang Ming Chiao Tung University, Taiwan	Hsun-Miao Huang, Ying-Sui Sun, Her-Hsiung Huang	Her-Hsiung Huang
E-P-436	Effect of anodization on corrosion resistance and cell response of Ti alloy scaffolds in bone implant applications	Her-Hsiung Huang	National Yang Ming Chiao Tung University, Taiwan	Hsin-Wen Chi, Chia-Fei Liu, Her-Hsiung Huang	Her-Hsiung Huang

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Poster Number	Title	Corresponding Author	Affiliation	All-authors	Presenter
E-P-48	Immobilized Hyaluronic acid on Silicone rubber by Low Temperature Atmospheric pressure plasma jets and UV Induced-Graft Polymerization Pseudo-Zwitterion Hydrogel for Biomedical Application	Shu-Chuan Liao	Da Yeh University, Taiwan	Jhong-Kun Siao, Shu-Chuan Liao	Jhong-Kun Siao
E-P-49	The antibacterial efficacy of UV-grafted Functionalization Hydrogel and Immobilization of Chinese Herb Extracts on the O_2 plasma-treated PET non-woven	Shu-Chuan Liao	Da Yeh University, Taiwan	Shu-Chuan Liao, Qing-Xiu Shi	Shu-Chuan Liao
E-P-490	On Octacalcium Phosphate Fabrication and Coatings on the Plasma Electrolytic Oxidized Ti_6Al_4V Alloys for Implant Use	Han-Cheol Choe	Chosun university, Korea	Kyeong-Tae Kim, Jong Kook Lee, Han-Cheol Choe	Kyeong-Tae Kim
E-P-491	Enhancement of Plant Growth to Increase Carbon Sink by Coating Graphene on Aglaonema	Yen-Hsun Su	National Cheng Kung University, Taiwan	Yun-Liang Chien, Chia-Wei Chang, Yen-Hsun Su,Shu-Mei Wang, Po- Chen Huang, Tzu-Han Wang	Yun-Liang Chien
E-P-494	Investigating the Surface Characteristics of MoS_2-Doped TiO_2 Coating on Ti_6Al_4V by Plasma Electrolytic Oxidation	Han-Cheol Choe	Chosun university, Korea	S. Arun, Sidra Sadaf Nisar, Han-Cheol Choe	Arun S
E-P-506	Comparison of Acrylic Acid and Acetic Acid Precursors for a Remote Atmospheric Pressure Plasma on Carboxylic Acid Groups Immobilisation and Antibacterial Coatings	Wei-Yu Chen	Ming Chi University of Technology, Taiwan	Wei-Yu Chen, Teng-Ping Chu, Jui-Sheng Lee, Ta-Chung An, Li-Chun Chang, Jyh-Wei Lee, Mu-Rong Yang, Sepideh Aliasghari, Allan Matthews	Wei-Yu Chen
E-P-511	Study on the behavior of osteoblasts on three-dimensional porous titanium surfaces treated with plasma treatment	Ying-Sui Sun	School of Dental Technology, Taiwan	Yun-Jung Lee, Wen-Chien Chen, Yu-Lin Kuo, Ying-Sui Sun	Yun-Jung Lee

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Poster Number	Title	Corresponding Author	Affiliation	All-authors	Presenter
Symposium F: Metallic and High-Entropy Alloy Coatings					
F-P-153	Improved microstructure and physical properties in highly (111)-oriented nano-twinned Ag thin films during the LASER annealing process	Fan-Yi Ouyang	National Tsing Hua University, Taiwan	Tsai-Shaun Kuo, Cheng-Jie Yang, Fan-Yi Ouyang	Tsai-Shaun Kuo
F-P-179	Effects of nitrogen addition on microstructures and mechanical properties of $(CoCrNi)_{100-x}N_x$ medium entropy alloy films	Yu-Chuan Lin	National Taiwan University, Taiwan	Yu-Chuan Lin, Chun-Hway Hsueh	Yu-Chuan Lin
F-P-291	Microstructure and Thermoelectric Properties of High-Entropy Thin Film-$AgMnGeSbTe_x$	Che-Hsin Lin	National Sun-Yat Sen University, Taiwan	Po-Yuan Yeh, Wen-Zhi Wang, Shin-Pon Ju, Bo-Shiuan Li, Che-Hsin Lin	Po-Yuan Yeh
F-P-315	Effects of Nd and B contents on property evaluation of $CoCrNiNd_xB_y$ medium entropy alloy films	Chia-Lin Li	Ming Chi University of Technology, Taiwan	Chia-Lin Li	Chia-Lin Li
F-P-369	Ni Coating Enhanced Interfacial Strength of α-Ti/α-Ti Ultrasonic Consolidation by introducing α-to-β transformation	Jhong-Ren Huang	National Taiwan University of Science and Technology, Taiwan	Tung-Lin Hsieh, Jhong-Ren Huang, Jhe-Yu Lin	Jhong-Ren Huang
F-P-39	Compositional-Segregation-Induced Dual-Length-Scale Nanotubes for Enhanced Surface Bioactivity of Ti-rich Ti_{65}–Zr_{18}–Nb_{16}–Mo_1 Medium-Entropy Alloy	Wen-Fu Ho	National University of Kaohsiung, Taiwan	Hsueh-Chuan Hsu, Ka-Kin Wong, Hsiao-Han Chang, Yan-Cing Lu, Shih-Ching Wu, Wen-Fu Ho	Yan-Cing Lu
F-P-416	Laser scanning annealing of Au film in a water	Jiunn-Woei Liaw	Chang Gung University, Taiwan	Shang-Yang Yu, Min-Hsiung Shih, Yi-Han Kuo, Jiunn-Woei Liaw	Shang-Yang Yu
F-P-471	Biocompatibility of Surface-textured Ti_6Al_4V Alloy Evaluated By Electrochemical and In-vitro studies	Jucheng. Lee	Ming Chi University of Technology, Taiwan	Jucheng. Lee, Pakman Yiu	Jucheng. Lee
F-P-483	Magnetic and Crystalline Properties of CoW Co-sputtering Alloy Films	Meng-Hung Tsai	UCSM Technology Corp, Taiwan	Chien-Chiang Chang, Wesley Rou, Meng-Hung Tsai, Chih-Wei Shih, Chih-Wen Tang, Wei-Chih Huang, Shang Hsien Rou	Chien-Chiang Chang
F-P-50	Effects of N_2/Ar flow ratio on microstructure and antibacterial properties of AlCrTiZrWN coatings prepared using high power impulse magnetron sputtering	Chi-Lung Chang	Ming Chi University of Technology, Taiwan	Jian-Fu Tang, Jung-En Tsao, Bo-Ruei Lu, Chi-Lung Chang	Jung-En, Tsao

Poster Session (I) 17:00 – 18:30 on Monday, November 13, 2023

Poster Number	Title	Corresponding Author	Affiliation	All-authors	Presenter
F-P-500	Exploring the microstructure of crack paths in nickel-based alloys deposited by laser cladding technology	Yu-Xiang Chen	National United University, Taiwan	Yu-Xiang Chen, Yi-Sheng Lai, Zhi-Hua Lin, Ming-Tsung Hung, Chun-Chih Liao	Yu-Xiang Chen
F-P-58	Preparation of Calcium Titanate Nanowires on Titanium Surface Using Alkaline Hydrothermal Treatment and Oyster Shell as Calcium Source	Wen-Fu Ho	National university of Kaohsiung, Taiwan	Hsueh-Chuan Hsu, Tzu-Yu Shih, Shih-Ching Wu, Wen-Fu Ho	Tzu-Yu Shih
F-P-67	Investigation of $AlCoCrFeNi_{2.1}$ eutectic high-entropy alloy coatings prepared by mechanical alloying	Chun-Liang Chen	National Dong Hwa University, Taiwan	Fang-Yu Huang†, Chun-Liang Chen	Fang-Yu Huang
F-P-74	Influence of alloying elements and dispersoids on characteristics of CoCrNiFe coatings by mechanical alloying	Chun-Liang Chen	National Dong Hwa University, Taiwan	Pin-Hsien Lin, Chun-Liang Chen	Pin-Hsien Lin
F-P-147	Characterization of cosputtered $(TiZrHfY)N_x$ films	Yung-I Chen	National Taiwan Ocean University, Taiwan	Tzu-Yu Ou, Li-Chun Chang, Yung-I Chen	Tzu-Yu Ou
F-P-20	Surface Sulfurization for Reducing Interface Scattering of Ruthenium Metallization for Low-Resistance Interconnect	Shou-Yi Chang	National Tsing Hua University, Taiwan	Yu-Lin Chen, Kai-Yuan Hsiao, Ming-Yen Lu, Pei Yuin Keng, Shou-Yi Chang	Yu-Lin Chen
F-P-203	RuAl Intermetallic Compound with Low Interface Scattering as Potential Low-Resistance Interconnect Metallization	Shou-Yi Chang	National Tsing Hua university, Taiwan	Yi-Ying Fang, Yung-Hsuan Tsai, Yu-Lin Chen, Ming-Yen Lu, Pei Yuin Keng, Shou-Yi Chang	Yi-Ying Fang
F-P-25	Effect of Nitrogen Partial Pressure on the Structural, Mechanical, and Electrical Properties of (CrHfNbTaTiVZr)N Coatings Deposited by Reactive Magnetron Sputtering	Fuh-Sheng Shieu	National Chung Hsing University, Taiwan	Tsung-Wei Wang, Du-Cheng Tsai, Erh-Chiang Chen, Zue-Chin Chang, Fuh-Sheng Shieu	Tsung-Wei Wang
F-P-455	Microstructure and Mechanical Property Study of AlCrNbSiTiN/TiBN High Entropy Alloy Nitride Multilayer Thin Films	Jyh-Wei Lee	Ming Chi University, Taiwan	Bih-Show Lou, Yan-Ru Wang, Chaur-Jeng Wang, Jyh-Wei Lee	Tse-Wei Chen
F-P-481	Corrosion behaviors of high-strength low-alloy steel after annealing at 1200°C	Chao-Sung Lin	National Taiwan University, Taiwan	Han-Sheng Huang, Chao-Sung Lin	Han Sheng Huang
F-P-83	Formation of the ultrathin Mo disk on Al_2O_3 (0001) substrate	Chin-Chung Yu	National University of Kaohsiung, Kaohsiung, Taiwan	Che-Ming Liu,Ting-Yu Lin	Yao-Ming Ku

Poster Session (I) 17:00 – 18:30 on Monday, November 13, 2023

Poster Number	Title	Corresponding Author	Affiliation	All-authors	Presenter
Symposium G: Topical Symposium: Theory, Simulation, and Modeling; Quantitative Surface Analysis					
G-P-225	The nitrogen and carbon dioxide capture on two-dimensional transition-metal dichalcogen material with vacancy: a first principles study	Huei-Ru Fuh	Yuan Ze University, Taiwan	Huei-Ru Fuh, Jen-Yu Bau	Jen-Yu Bau
G-P-449	Crystal Structures and Optical Bandgaps of N-doped TiO_x Coatings: Experiments and First-principles Calculations	Fu-Hsing Lu	National Chung Hsing University, Taiwan	Meng-Yu Lin, Xin-Xian Yang, Fu-Hsing Lu	Xin-Xian Yang
G-P-245	Simulations for High PTCE on CIE, Fabrication and Analysis for Colored Solar Selective Absorbers of SiO_2-Cr-SiO_2 Films in Building Applications	Fu-Der Lai	National Kaohsiung University of Science and Technology, Taiwan	ZONG-ZE HONG, Fu-Der Lai	Zong-Ze Hong
G-P-335	Valence Band Structure of Monolayer Black Phosphorus for Hole Transport	Shu-Tong Chang	National Chung Hsing University, Taiwan	Yun-Fang Chung, Shu-Tong Chang	Yun-Fang Chung
G-P-341	First Principles Investigation of CO_2 Adsorption on Single Atom (Sc, Ti, V, Cr, Mn, Fe, Co, Ni, Cu, and Zn) supported on Graphene Systems	Chao-Cheng Kuan, Yen-Hsun Su	National Cheng Kung University, Taiwan	Xuan-Yu Wei, Yen-Hsun Su, Chao-Cheng Kuan	Xuan-Yu Wei
G-P-352	Ab initio study of the electronic structure and defect formation energy of Sn-doped β-Ga_2O_3	Po-Liang Liu	National Chung Hsing University, Taiwan	Cheng-Lung Yu, Guang-Cheng Su, Jine-Du, Fu	Guang-Cheng, Su
G-P-368	Germanene: A First Principle Study of Band Structure and its Application	Shu-Tong Chang	National Chung Hsing University, Taiwan	Shi-Hui Luo, Yun-Fang Chung, Shu-Tong Chang	Shi-Hui Luo
G-P-372	Recreating Rare Diamond Hues: The FDTD Simulation of Noble Metal Nanoparticle-induced LSPR Effects	Sheng-Rong Song	National Taiwan University, Taiwan	Tsung-Jen Wu, Wen-Shan Chen, Wen Lin, Mun-Wei Phan, Shao-Chin Tseng	Tsung-Jen Wu
G-P-402	Thermal Flow Simulation Analysis of Low-Pressure Hot-Wall Chemical Vapor Deposition System	Hua-Lin Chen	Taiwan Instrument Research Institute, National Applied Research Laboratories, Taiwan	Hua-Lin Chen, Kun-An Chiu,Wei-Chun Chen,Yu-Wei Lin,Che-Chin Chen, Hung-Pin Chen	Hua-Lin Chen
G-P-447	Electron Mobility of SiGe HBT based on Strained SiGe Thin Film	Shu-Tong Chang	National Chung Hsing University, Taiwan	Ying-Wei Yuan, Yun-Fang Chung and Shu-Tong Chang	Ying-Wei Yuan
G-P-513	Atomic resolution microstructural characterization by electron ptychography	Chien-Nan Hsiao	National Applied Research Laboratories, Taiwan	Chien-Nan Hsiao, Tsai-Fu Chung, Chien-Chun Chen	Chien-Nan Hsiao
G-P-519	Chipping-Induced Fracture Investigation of Glass Interposer with Dielectric Coatings	Chang-Chun Lee	National Tsing Hua University, Taiwan	Chang-Chun Lee, Jian-Han Li	Chang-Chun Lee
G-P-528	Visible light Photocatalytic activity of nitrogen-doped TiO_2 nanoparticles and Calcined in air and nitrogen atmosphere	Swapnil Nikalje	National Dong Hwa University, Taiwan	Chen,chia-yen, Chen,Yijia, Swapnil Nikalje	Swapnil Nikalje

TACT 2013 Program for Poster Session (II)

16:00 – 17:30 on Tuesday, November 14, 2023

(Posters assembled before 13:30. Presenters are required to stand near their poster during Poster Session)

Poster Number	Title	Corresponding Author	Affiliation	All-authors	Presenter
Symposium A: Coatings for sustainable energy					
A-P-105	Synthesis and characterizations of $MnIn_2S_4$/SWCNTs composite as anode materials for Lithium ion batteries	Wei-Ren Liu	Chung Yuan Christian University, Taiwan	Pei-Jun Wu, Wei-Ren Liu	Pei-Jun Wu
A-P-140	Vapor-assisted solution process (VASP) formation of perovskite film in solar cells	Peter Chen	National Cheng Kung University, Taiwan	Yu-Hsuan Hsiao, Chen-Fu Lin, Peter Chen	Yu-Hsuan Hsiao
A-P-168	Hierarchical porous graphite felt with a synergistic effect of nitrogen-doping and TiO_2 decoration for high-performance vanadium redox flow batteries	Yu-Sheng Hsiao	National Taiwan University of Science and Technology, Taiwan	Jen-Hsien Huang, Min-Tzu Hung, Yu-Sheng Hsiao	Jen-Hsien Huang
A-P-220	Chemical vapor deposition growth of van der Waals heterostructures for photoelectrochemical conversion	HE-YUN DU	Ming Chi University, Taiwan	CHEN-YUAN HUANG, HE-YUN DU	CHEN-YUAN HUANG
A-P-248	Direct growth of molybdenum disulfide on graphene via transfer supporting layer for CO_2 photoreduction	Mohammad Qorbani, Kuei-Hsien Chen, Li-Chyong Chen	Center for Condensed Matter Sciences, National Taiwan University, Taiwan	Yohsun Liu, Yuting Peng, Mohammad Qorbani, Chih-Yang Huang, Chen-Hao Wang, Kuei-Hsien Chen and Li-Chyong Chen	Yohsun Liu
A-P-253	Electrodeposition Behavior of Solid-state Electrolyte for Li-ion Batteries	Tzu-Ying Lin	National Tsing Hua University, Taiwan	Rui-Tung Kuo, Hsuan-Kai Tseng, Tzu-Ying Lin	Rui-Tung Kuo
A-P-274	Conductive polymer film modified carbon felt used as negative electrode in all-vanadium redox flow battery	Ting-Yu Liu	Ming Chi University of Technology, Taiwan	Chao-Chi Lai, Ting-Yu Liu, Chien-Hing Lin	Wan-Rou Liu
A-P-284	The Assembling Method for Improving Gel Polymer Electrolyte Lithium Batteries	Shang-En Liu	Institute of Nuclear Energy Research, Taiwan	Shang-En Liu, Yu-Chen Li, Min-Chuan Wang, Ting-Kuei Tsai	Shang-En Liu
A-P-290	Multi Element Prussian Blue Analogue for photo-Fenton process	Jhy-Ming Ting	National Cheng Kung University, Taiwan	Joshlyn Putri Budianto, Jhy-Ming Ting	Joshlyn Putri Budianto
A-P-327	The composite current collector for anode-less NMC811 gel polymer electrolyte lithium batteries	Shu-Mei Chang	Institute of Nuclear Energy Research, Taiwan	Tien-Hsiang Hsueh, Min-Chuan Wang, Shang-En Liu, Yu-Chen Li, Ting-Kuei Tsai, Yu-Lin Yeh, Shu-Mei Chang, Angus Shiue	Tien-Hsiang Hsueh
A-P-329	Effect of commercial P25 TiO_2 doping in Polydimethylsiloxane tribo-film on the output performance of triboelectric nanogenerator and its application	Chen-Kuei Chung	National Cheng Kung University, Taiwan	You-Jun Huang, Kai-Hong Ke, and Chen-Kuei Chung	Chen-Kuei Chung
A-P-333	Boron carbon nitride and ultra-nanocrystalline diamond on carbon cloth for supercapacitor	Bohr-Ran Huang	National Taiwan University of Science and Technology, Taiwan	Bohr-Ran Huang, Jing-Cian Yeh	Jing-Cian Yeh

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Poster Number	Title	Corresponding Author	Affiliation	All-authors	Presenter
A-P-339	Carbon Capture and Storage Enabled by Cu_2O Thin Film Deposition Using DMSO Solvent	Yen-Hsun Su	National Cheng Kung University, Taiwan	Yu-Teng Wu, Yen-Hsun Su	Yu-Teng Wu
A-P-351	Annealing effect on Microstructures and crystal phase evolution of BaCeZrYYbO3-δ coatings deposited by solution precursor plasma spray (SPPS) for the sustainable energy applications	Yen-Yu Chen	National Pingtung University of Science and Technology, Taiwan	Wei-Xiang Zeng, Yen-Yu Chen	Wei-Xiang Zeng
A-P-377	Intercalation of Gold Nanoparticles into Graphene via Supercritical Carbon Dioxide	Jyh-Ming Ting	National Cheng Kung University, Taiwan	Swatantra Kumar, Jyh-Ming Ting	Swatantra Kumar
A-P-383	Kapok-assisted solution combustion synthesis of Co_3O_4-CoO/C for supercapacitors	Mary Donnabelle Balela	University of the Philippines, Philippines	Rose Anne E. Acedera, Mary Donnabelle L. Balela	Mary Donnabelle Balela
A-P-399	Nitrogen Doped Graphene Using Supercritical Fluid	Jyh-Ming Ting	National Cheng Kung University, Taiwan	Li-Hung Lu, Thi Xuyen Nguyen, Siang-Yun Li, Jyh-Ming Ting	Li-Hung Lu
A-P-413	Compare the deposition rates of Pd and Ni thin films by using the DC magnetron sputtering technique	Ching-Min Chang	Da-Yeh University, Taiwan	Ching-Min Chang, Tzu-Hung Chen, Wen-Chieh Wu	Ching-Min Chang
A-P-417	Elevated Efficiency of Platinum-Cobalt Alloy Supported by Natto-like N-Doped Carbon Spheres as a Long-lasting Catalyst for Facilitating the Oxygen Reduction Reaction.	Chen-Hao Wang	National Taiwan University of Science and Technology, Taiwan	Jun-Yu Tsai, Yusuf Pradesar, Afandi Yusuf, Hsin-Chih Huang, Chen-Hao Wang	Chun-Yu Tsai
A-P-419	High efficient Al-$MnFe_2O_4$ Thin film as an Excellent Electrocatalyst for Oxygen evolution reactions.	Te-Wei Chiu	National Taipei University of Technology, Taiwan, Taiwan	Ganesh Abinaya meenakshi, Te-Wei Chiu	Ganesh Abinaya meenakshi
A-P-42	Hydrothermal and Atmospheric Pressure Plasma Synthesis of Cu_xO/TiO_2 Hetero-Structures on Titanium Sheet for Photo-electrochemical Water Splitting	Wen-Jen Liu	I-Shou University, Taiwan	Yu-Hong Zhang, Jia-Zhen Li, Ching-Lun Lu, Wen-Jen Liu	Jia-Zhen Li
A-P-43	Synthesis of Titanium Dioxide and Copper Oxide Heterostructures by Using AP Plasma and Hydrothermal Processes for Photo-electrochemical Hydrogen Generation	Wen-Jen Liu	I-Shou University, Taiwan	Guan-Yi Hu, Cheng-Jui Tsai, Chiao-Lin Hsu, Wen-Jen Liu	Cheng-Jui Tsai
A-P-44	Hetero-nanostructure of Copper Sheet Grown Copper Oxides and Titanium Dioxide Deposited by Atmospheric Pressure Plasma System for Photo-electrochemical (PEC) Hydrogen Generation Application	Wen-Jen Liu	I-Shou University, Taiwan	Kuan-Chuan Chen, Hao-Yu Lee, Sheng-Huang Wu, Wen-Jen Liu	Hao-Yu Lee
A-P-443	Enhanced Photoelectrochemical Water Splitting Using a Heterojunction Photoelectrode of Graphitic Carbon Nitride Quantum Dots on Copper Oxide Thin Films	YongMan Choi	National Yang Ming Chiao Tung University, Taiwan	Bu-Jine Liu, Yi-Syuan Li, Yu-Ting Liu, YongMan Choi	Bu-Jine Liu
A-P-444	Electrical and Photoelectrochemical Properties of Nanostructured Copper Oxide Thin Films	Hsin-Chieh Yu	National Yang Ming Chiao Tung University, Taiwan	Wei-Cheng Jiang, Chien-Tsung Li, Yu-Wei Lin, Joshua S. Choi, Hsin-Chieh Yu	Wei-Cheng Jiang

Poster Session (II) 16:00 – 17:30 on Tuesday, November 14, 2023

Poster Number	Title	Corresponding Author	Affiliation	All-authors	Presenter
A-P-448	Fabrication and Characterization of Micropatterned Prussian Blue/Poly(3,4-ethylenedioxythiophene) Complementary Electrochromic Devices	Cheng-Lan Lin	Tamkang University, Taiwan	Cheng-Lan Lin, Siang-Yu Liou	Cheng-Lan Lin
A-P-45	Application Research of Atmospheric Pressure Plasma Deposition of Cuprous Oxide and Zinc Oxide Heterogeneous Nano-dendrite Structures for Photo-electrochemical (PEC) Hydrogen Production	Wen-Jen Liu	I-Shou University, Taiwan	Li-Wen Zhang, Kun-Ying Zhang, Yu-Lin Zhu, Wen-Jen Liu	Kun-Ying Zhang
A-P-450	Study of Using HiPIMS-deposited TixN Film as Oxygen Evolution Reaction (OER) Catalyst	Wan-Yu Wu	National United University, Taiwan	Yi-Cho Tsai, Wan-Yu Wu, Ying-Xiang Lin, Siang-Yun Li, Jyh-Ming Ting	Yi-Cho Tsai
A-P-454	Characteristics of Carbon Cloth Electrode Modified with Titanium Nitride Nanocoating by Atomic Layer Deposition for Application in Vanadium Redox Flow Battery	Wen-Jen Lee	National Pingtung University, Taiwan	Yu-Chi Chang, Wen-Jen Lee	Yu-Chi Chang
A-P-46	Hetero-nanostructure of Cuprous Oxide and Zinc Oxide synthesized by Atmospheric Pressure Plasma System and Hydrothermal System for Photo-electrochemical (PEC) Hydrogen Generation Application	Wen-Jen Liu	I-Shou University, Taiwan	Po-Jen Cheng, Jia-Suei Wang, Ting-Yi Xia, Wen-Jen Liu	Jia-Suei Wang
A-P-476	Preparation and Electrochemical performance of solid UV-curing polymer electrolyte film for all-solid-state lithium-ion battery	Yin-Li Wang	Yuan Ze University, Taiwan	Yin-Li Wang, Debabrata Mohanty, I-Ming Hung	YIN-LI WANG
A-P-479	The iron-tungsten Schiff base coating on nickel foam for alkaline water electrolysis	Tzu Hsuan Chiang	National United University, Taiwan	Bo-Han Lin, Tzu Hsuan Chiang	Bo-Han Lin
A-P-489	Preparation of $BaTiO_3/TiO_2$ Heterostructure Thin Films with High Photoelectrochemical Response by a Hydrothermal-Galvanic Couple Method	Fu-Hsing Lu	National Chung Hsing University, Taiwan	Ming-Fung Zhang, Li-Chin Wu, Fu-Hsing Lu	Li-Chin, Wu
A-P-499	High Temperature Solar Absorbers with Titanium Dioxide Coating	Sean Wu	Lunghwa University of Science and Technology, Taiwan	Sean Wu, Wen-Jen Lee, Yee-Shin Chan, Zong-Liang Tseng, Jian-Fu Tang, Chin-Hsiang Cheng	Sean Wu
A-P-521	Enhancement of Photoelectrochemical Response using TiN_xO_y/TiN Multilayer Designs Produced by Air-based Sputtering Deposition	Fu-Hsing Lu	National Chung Hsing University, Taiwan	Shih-Peng Chang, Xiang-Yang Li, Fu-Hsing Lu	Xiang-Yang Li
A-P-522	Sputtering Deposition of N-doped TiO_2 Multi-Layer Thin Films Using Air as a Reactive Gas for Photoelectrochemical Applications	Fu-Hsing Lu	National Chung Hsing University, Taiwan	Xin-Xian Yang, You-Cheng Zhuang, Fu-Hsing Lu	You-Cheng Zhuang
A-P-525	Low Temperature Metal Oxide Encapsulation Layers Formed by Atomic Layer Deposition	Jaeyeong Heo	Chonnam National University, Korea	Jaeyeong Heo, Ho Jae Ki, Yong Tae Kim	Jaeyeong Heo

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Poster Number	Title	Corresponding Author	Affiliation	All-authors	Presenter
A-P-70	Investigation of the preparation approaches of ceria-based electrolyte and the cell performance for solid oxide fuel cell application	Tai-Nan Lin	National Atomic Research Institute, Taiwan	Tai-Nan Lin, Wei-Xin Kao, Chun-Yen Yeh, Hong-Yi Kuo, Tai-Cheng Chen	Tai-Nan Lin
A-P-84	Carbonization of Nickel hydroxide nanosheets for the improvement of bi-functions oxygen evolution reaction and hydrogen evolution reaction for water splitting	Chien-Kuo Hsieh	Ming Chi University of technology, Taiwan	Jun-Kai Yang, Sen-Yuan Bai, Chien-Kuo Hsieh	Jun-Kai Yang
Symposium B: Nanostructured and nanocomposite coatings					
B-P-103	Fabrication of Metal/Dielectric/Metal Nanocavity Structures and Their Emission Enhancement Property	Takayuki Kiba	Kitami Institute of Technology, Japan	Yusuke Takahashi, Takayuki Kiba, Midori Kawamura, Naofumi Ohtsu, Yoshio Abe	Yusuke Takahashi
B-P-113	Synthesis and characterization of alginate/clay coating materials and its barrier property under high relative humidity	Sang Bong, Lee	Korea Institute of Industrial Technology, Korea	Seoung Gil Yoon, Jeong Hyun Lee, Sang Bong Lee	Seoung Gil Yoon
B-P-114	Layer-by-layer self-assembly structured film composed of cationic exchanged clay and polyethylene glycol with its oxygen barrier property	Sang Bong Lee	Korea Institute of Industrial Technology, Korea	Seoung Gil Yoon, Jeong Hyun Lee, Sang Bong Lee	Seoung Gil Yoon
B-P-116	Surface modification of electrospun polyurethane nanofibrous membranes containing silver nanoparticles for antibacterial applications	Yu-Wei Cheng	Ming Chi University of Technology, Taiwan	Yen-Yu Lin, Yu-Wei Cheng	Yen-Yu Lin
B-P-118	Influence of Si content on the oxidation resistance and thermal stability of (AlCrNbSixTi)N hard coatings	Jenq-Gong Duh	National Tsing Hua University, Taiwan	Shao-Hsuan Chin, Sheng-Yu Hsu, Jenq-Gong Duh	Shao-Hsuan Chin
B-P-121	Control of Localized Surface Plasmon Resonance of Metal Nanostructures Fabricated by Nanosphere Lithography	Takayuki Kiba	Kitami Institute of Technology, Japan	Fuya Okuda, Atsushi Furumoto, Takayuki Kiba, Midori Kawamura, Yoshio Abe, Junichi Takayama, Satoshi Hiura, Akihiro Murayama	Fuya Okuda
B-P-124	Oxidation behavior of (AlCrNbTiB)N multicomponent nitride coatings with various boron contents	Jenq-Gong Duh	National Tsing Hua University, Taiwan	Chih-Hao Chen, Sheng-Yu Hsu, Jenq-Gong Duh	Chih-Hao Chen
B-P-126	Investigation of multilayer thin film design and material behavior using high-power magnetron pulsed sputtering	Ming-Tzer Lin	National Chung Hsing University, Taiwan	YU-JEN LIU, HAO-YU WANG	YU-JEN LIU
B-P-133	Effect of Si content on the mechanical properties of AlCrNbTiMoSi High-entropy nitride coatings co-sputtered by magnetron sputtering	Jenq-Gong Duh	National Tsing Hua University, Taiwan	Yun Chen Chan, Sheng-You Hsu, Jenq-Gong Duh	Yun-Chen Chan

B-P-162	Influence of oxygen ratio on growth and optical properties of ZnO thin film prepared by pulse electron deposition method	Nguyen Ngoc Dinh	Faculty of Physics, University of Science, Vietnam National University, Vietnam	Nguyen Duy Thien, Phan Thi Dien, Nguyen Quang Hoa, Vuong Van Hiep, Le Quang Thao, Pham Van Thanh, Nguyen Ngoc Dinh	Nguyen Ngoc Dinh
B-P-166	Effect of different sputtering power on the RF-sputtered Ni-doped Ga_2O_3 films	Shui-Yang Lien	Xiamen University of Technology, China	Yu-Quan Zhu, Yan Liu, Chia-Hsun Hsu, Pao-Hsun Huang, Shui-Yang Lien	Yu-Quan Zhu
B-P-2	Creating an ECM-like three-dimension structure to enhance the corrosion resistance and biological responses of titanium implants	Ying-Sui Sun	School of Dental Technology, Taiwan	Yi-Hsuan Tsai, Her-Hsiung Huang, Ying-Sui Sun	ying-sui Sun
B-P-201	Plasma etching behavior of Y_2O_3-MgO nanocomposite films	Wei-Kai Wang	Da-Yeh University, Taiwan	Yu-Hao Chang, Ma Shih-Sung, Shih-Yung Huang, Wei-Kai Wang	Yu-Hao Chang
B-P-202	Next-generation Electrodes for Enhancing Battery Stability.	Shu-Hao Chang	Chung Yuan Christian University, Taiwan	Po-Yu Chen, Ching-Yu Huang, Bo-Ren Jian, Ching-Chieh Shih, Shu-Hao Chang	Po-Yu Chen
B-P-230	Preparation and characterization of black Au films	Midori Kawamura	Kitami Institute of Technology, Japan	Kazuto Takada, Midori Kawamura, Takayuki Kiba, Yoshio Abe, Mikito Ueda, Martin Hruska and Premysl Fitl	Kazuto Takada
B-P-235	Growth of Porous Films Orderly Stacked by Nanoballs with Various Sorts Carbons	Fu-Der Lai	National Kaohsiung University of Science and Technology, Taiwan	Fu-Der Lai, Yen-Feng Li	Yen-Feng Li
B-P-261	Improvement of Cathodoluminescence of $YAlO_3$:Gd_{3+} for High-resolution Bio-imaging	Kei Hosomi	Shizuoka University, Japan	Kei Hosomi, Wataru Inami, Yoshimasa Kawata	Kei Hosomi
B-P-266	Evaluation of Mechanical Properties of TiSiN and TiAlN Coatings for Surface Protection under Varying Deposition Conditions	Se-Hun Kwon	Pusan national university, Korea	Seong Lee	Seong Lee
B-P-305	Investigating the Impact of Surface Charge Transfer on the Photocatalytic Performance of Thin Film $FeVO_4$ by applying Bias Voltages	Yen-Hsun Su	National Cheng Kung University, Taiwan	Jia-You Hsieh	Jia-You Hsieh
B-P-319	Uniform distribution of polystyrene beads by spin-coating in the aids of machine learning	Tsung-Yu Huang and Kun-Huang Chen	Ming Chi University of Technology, Taiwan	Tsung-Yu Huang, Kun-Huang Chen and Jing-Hao Huang	Jing-Hao Huang
B-P-321	Different annealing temperatures of Boron Carbon Nitride nanomaterials for supercapacitor applications	Bohr-Ran Huang	National Taiwan University of Science and Technology, Taiwan	Bohr-Ran Huang, Yu-Sheng Huang	Yu-Sheng Huang
B-P-356	Superhard Nanodiamond Films Grown on Ti Substrates Via Hybrid Coaxial Arc Plasma Deposition	Lama Osman	Kyushu University, Fukuoka, Japan	Lama Osman, Ali M. Ali, Abdelrahman Zkria, Hiroshi Naragino, and Tsuyoshi Yoshitake	Lama Osman
B-P-363	Cobalt – Doped Molybdenum Disulfide as a Catalyst for Electrochemical Nitrogen Reduction Reaction	Shao-Sian Li	National Taipei University of Technology, Taiwan	Tsung-Min Tsai	Tsung-Min Tsai

B-P-384	Templated synthesis of $CoFe_2O_4$ on KOH activated kapok carbon fibers as composite supercapacitor electrode	Mary Donnabelle Balela	University of the Philippines, Philippines	Rose Anne E. Acedera, Mary Donnabelle L. Balela	Mary Donnabelle Balela
B-P-385	Slippery Liquid-Infused Particulate Bilayer Coating for Extra-Corporeal Circulation Against the Red Blood Cell Damage	Chih-Yu Kuo	National Taipei University of Technology, Taiwan	Posung Chen, Chih-Yu Kuo, Wei-Tong Li, Chi-Kai Lin, Trong-Ming Don	Wei-Tong Li
B-P-393	Preparation of Ag-Decorated Graphene by Laser Scribing and its application in surface-enhanced Raman spectroscopy	Shih-Chieh Hsu	TAMKANG UNIVERSITY, Taiwan	Guan-Yu Chen, Szu-Han Chao, Shih-Chieh Hsu	Szu-Han Chao
B-P-398	Characterization of Sr-doped Hydroxyapatite Thin Films Grown by Magnetron Sputtering Applied to Titanium-Alloy Biomedical Implants	Chun-Ming Chang	Da-Yeh University, Taiwan	Bo-Yan Zhang, Sin-Liang Ou, Jane-Yii Wu, Yu-Rui Chen, Chun-Ming Chang	Bo-Yan Zhang
B-P-412	Compare the surface morphologies of Pd and Ni thin films by using the DC magnetron sputtering technique	Ching-Min Chang	Da-Yeh University, Taiwan	Ching-Min Chang, Tzu-Hung Chen, Wen-Chieh Wu	Ching-Min Chang
B-P-437	Cu-doped ZnO/FTO/Ag nano-heterostructure arrays as the sensitive, stable, and multifunctional surface-enhanced Raman scattering substrate	Ying-Ru Lin	National Yang Ming Chiao Tung University, Taiwan Feng Chia University, Taiwan	Ying-Ru Lin, Yu-Cheng Chang, Yu-Fan Chen	Ying-Ru Lin
B-P-458	Effects of Plasma Electrolytic Oxidation on Phase Distribution and Mechanical Properties of t-ZrO_2 Nanoparticle-Reinforced AZ91D Magnesium Alloy.	Chen-Chia Chou	National Taiwan University of Science and Technology, Taiwan	Che-Hao Hsu, Jo-Wen Haung, Chen-Chia Chou	Chen-Chia Chou
B-P-473	High-temperature annealing of TiN epitaxial layers grown on 4H-SiC substrates	Li Chang, Chun-Hua Chen	National Yang Ming Chiao Tung University, Taiwan	Hsueh-I Chen, Ching-Ho Chen, Yi Chou, Chih-Wei Kuo, Cheng-Jung Ko, Li Chang, Chun-Hua Chen	Hsueh-I Chen
B-P-493	Visible photocatalyst powder doped with nitrogen TiO_2 annealed with different holding times was prepared by sol-gel method	Pei-xuan Yang	National Dong Hwa University, Taiwan	Pei-xuan Yang, Yi-jia Chen, Chia-Yen Chen	Pei-xuan Yang
B-P-498	Growth of high-quality 2D-molybdenum disulfide on nanostructured surface	Sheng-Hui Chen	Taiwan Instrument Research Institute, National Applied Research Laboratories, Taiwan	Gui-Sheng Zeng, Lin-Hsiang Lee, Sheng-Hui Chen	Gui-Sheng Zeng
B-P-512	Heterostructure : Cuprous Oxide/Titanium Dioxide Nanotubes For Electrocatalytic Nitrate Reduction	Lu-Lin Li	National United University, Taiwan	Cheng-En Li, Yui-Hung Lee, Lu-Lin Li	Cheng-En Li
B-P-524	The biocompatibility of femtosecond laser-structed acupuncture needles	Bosu Jeong	B2LAB Co., Ltd.	Byunghak Lee, Hwan Koo, Younghyeon Kim, and Bosu Jeong	Byunghak Lee
B-P-60	Acetone gas sensor by SnO_2 nanoparticles decorated on sphere structure of MoS_2 nanosheets	Feng-Renn Juang	National Sun Yat-sen University, Taiwan	Feng-Renn Juang, Hung-Chieh Lan, Hao-Po Chuang, Hsu-En Chen, Wei-Zhou Chen, Yen-Ming Chen	Feng-Renn Juang
B-P-72	The magnetic anisotropy and leakage current behaviors of Ni/ZnO thin films grown on Si substrates	Chin-Chung Yu	National University of Kaohsiung, Taiwan	Cho-Min Huang, Chin-Chung Yu, Bo-Cia Chen	Cho-Min Huang

B-P-76	Study on the Synergistics of Copper Doping and Porous ZnO Nanorod Arrays for Enhanced Photoelectrochemical Water Splitting Performance through Piezotronic Effect	Chuan-Pu Liu	Nation Cheng Kung University, Taiwan	Yu-Liang Hsiao, An-Mi Chang, Ying-Chih Pu, Chuan-Pu Liu	Yu-Liang Hsiao
B-P-88	Effect of Deposition Temperature on Plasma Enhanced Atomic Layer Deposition Magnesium Oxide Films	Shui-Yang Lien	Xiamen University of Technology, China	Zhan-Bo Su, Xiao-Ying Zhang, Peng Gao, Feng-Min Lai , Shui-Yang Lien and Wen-Zhang Zhu	Zhan-Bo Su
B-P-90	In-situ synthesis and modification of Ni based metal organic frameworks of Nickel-1,3,5-benzene tricarboxylate for methanol oxidation reaction	Chien-Kuo Hsieh	Ming Chi University of Technology, Taiwan	Wen-Ya Lee, Chien-Kuo Hsieh	Wen-Ya Lee
B-P-91	An effective method of improving surface hardness from 1050 aluminum alloy	C. K. Chung	National Cheng Kung University, Taiwan	C. A. Ku, C. C. Wu, C. W. Hung & C. K. Chung	C. A. Ku
B-P-96	High-k Hafnium Oxide Thin Films Prepared by High Power Impulse Magnetron Sputtering at Room Temperature	Shui-Yang Lien	Xiamen University of Technology, China	Yao-Tian Wang, Ming-Jie Zhao, Hua Xu, Feng-Min Lai, Shui-Yang Lien and Wen-Zhang Zhu	Yao-Tian Wang
B-P-97	Zinc-doped gallium oxide films with p-type conductivity prepared by spatial atomic layer deposition and applications in UV photodetectors	Shui-Yang Lien	Xiamen University of Technology, China	Wen-Bin Wu, Chia-Hsun Hsu, Xin-Xiang Yue, Peng Gao, Feng-Min Lai, Shui-Yang Lien, Wen-Zhang Zhu	Wen-Bin Wu
Symposium C: Semiconductor, optoelectronic and flexible device films					
C-P-102	Investigation of Light Confinement Effect on Radiative Process in Microcavity OLED	Takayuki Kiba	Kitami Institute of Technology, Japan	Takuma Endo, Tsubasa Tanno, Takayuki Kiba, Midori Kawamura	Takuma Endo
C-P-106	Design of Experiments (DOE) for Ultra-Smooth Surface in β-Ga_2O_3-Chemical Mechanical Polishing (CMP) through Orthogonal Array Experiments	Nam-Hoon Kim	Chosun University, Korea	Hyun Jun Cheon, Seoyeon An, Jae Yeon Wi, Jiyeon Park, and Nam-Hoon Kim	Hyun Jun Cheon
C-P-109	Control of EL Spectrum of Blue OLED with Ag/ZnS/Ag anode via Coupling between Surface Plasmon and Microcavity Mode	Takayuki Kiba	Kitami Institute of Technology, Japan	Tatsuhiro Goto, Yuto Masuda, Naoya Satoh, Takayuki Kiba, Midori Kawamura, Yoshio Abe	Tatsuhiro Goto
C-P-111	Ta-Si-O films with extremely low TCR and low resistivity deposited by single-target magnetron sputtering	Sheng-Chi Chen	Ming Chi University of Technology, Taiwan	Cheng-Lung Chen, Yen-Chen Liu, Sheng-Chi Chen, Cheng Huang , Wei-Sheng Huang, Yang-Yuan Chen	Yen-Chen Liu
C-P-112	Epitaxial growth of p-type Li-doped NiO films by atmospheric pressure mist chemical vapor deposition and their heterojunction devices	Hou-Guang Chen	I-Shou University, Taiwan	Hou-Guang Chen, Huei-Sen Wang, Jing-Yi Feng, Cheng-Wei Huang	Hou-Guang Chen
C-P-115	Ambient spray coating of lead-free inorganic halide perovskite thick films for X-ray detection	Peter Chen	National Cheng Kung University, Taiwan	Yen-Ting Chen, Zi-Xiang Wen, Chen-Fu Lin, Peter Chen	Zi-Xiang Wen
C-P-119	Photoresponse of WS_2 Monolayers Grown by PECVD	Yung-Huang Chang	National Yunlin University of Science and Technology, Taiwan	Yung-Huang Chang, Chia-Yu Chiang, Yan-Hong Chen, Chien-Sheng Huang, Chi-Lon Fern, Yuan-Tsung Chen	Chia-Yu Chiang

C-P-12	Effects of Atmospheric Annealing on Transparent Antenna Properties of ITO Thin Films	Yoji Yasuda	Tokyo polytechnic university, Japan	Yoji Yasuda, Fukuro Koshiji, Shin-ichi Kobayashi, Takayuki Uchida, Yoichi Hoshi	Yoji Yasuda
C-P-125	Wetting enhancement in solder joint process via Ar/H_2 atmospheric pressure plasma	Jenq-Gong Duh	National Tsing Hua University, Taiwan	Pin-Yuan Lai, Yuan-Tai Lai, Sheng-Yu Hsu, Po-Yu Chen, Jenq-Gong Duh	Pin-Yuan Lai
C-P-150	Reducing sputtering damage in bifacial solar cell.	Peter Chen	National Cheng Kung University, Taiwan	Ming-Xun Jiang, Chen-Fu Lin, Peter Chen	Ming-Xun,Jiang
C-P-154	Inference of Oxygen content on the Structure and Properties of WOx Films	T.K. Tsai	National Formosa University, Taiwan	H.Y. Wu, T.K. Tsai, T.F. Hsieh, and T.H. Yang	T.F. Hsieh
C-P-156	Machine Learning-Enabled Advancements in Anti-Reflective Film for Flexible Electronics	Y.-C. WANG	Cheng Shiu University, Taiwan	Y.-C. WANG, R.-S. Yu	Y.-C. WANG
C-P-159	Deposition of rutile titanium dioxide using high-power pulsed magnetron sputtering	Takayuki Ohta	Meijo university, Japan	Miyuki Nishimura, Tayuki Ohta	Takayuki Ohta
C-P-167	Fabrication of conjugated polymer nanocomposites-based biosensor for trace biomolecules detection	Yu-Wei Cheng	Ming Chi University of Technology, Taiwan	Jia-Lun Xu, Yu-Wei Cheng	Jia-Lun
C-P-169	Development of Microstructure Flexible Pressure Sensors for Measurement of Mobility	Shu-Hao Chang, Fu-Yu Beverly Chen	Chung Yuan Christian University, Taiwan	Yu-Quan Chan, Po-Yu Chen, Wen-Hsi Yang, Fu-Yu Beverly Chen, Tzu-Yao Lin, Shu-Hao Chang	Yu-Quan Chan
C-P-180	Effects of low-temperature ozone annealing on operation characteristics of solar-blind photodetector based on beta-Ga_2O_3 films	Shui-Yang Lien	Xiamen University of Technology, China	Yu-Quan Zhu, Yan Liu, Chia-Hsun Hsu, Pao-Hsun Huang, Shui-Yang Lien, Chien-Jung Huang	Yu-Quan Zhu
C-P-181	Effects of various substrate temperatures on the properties of Eu-doped NiO films	Shui-Yang Lien	Xiamen University of Technology, China	Yu-Quan Zhu, Chia-Hsun Hsu, Pao-Hsun Huang, Shui-Yang Lien, Chien-Jung Huang	Yu-Quan Zhu
C-P-191	Preparation of Cu(In,Ga)$(S,Se)_2$ absorber via CuGa-NaF-KF target and the influence of Na/K ratio	Yi-Cheng Lin	National Changhua University of Education, Taiwan	Chong-Lun Wang, Jen-Feng Hsu, Yi-Cheng Lin	Jen-Feng Hsu
C-P-210	Preparation and Investigation of Optoelectronic Properties of Polarity-Controllable Titanium Oxide Thin Films Using High-Power Impulse Magnetron Sputtering	Sheng-Chi Chen	Ming Chi University of Technology, Taiwan	Shih-Chieh Hsu, Chao-Kuang Wen, Sheng-Chi Chen, You-Sheng Lu, Li-Hsien Yeh	Shih-Chieh Hsu
C-P-211	Comparison of Amino- and Sulfate- terminated Self-Assembled Monolayers for Cu/Porous Low-k Dielectrics Integration	Yi-Lung Cheng	National Chi-Nan University, Taiwan	Yi-Lung Cheng, Kesavan Stalindurai, Hao-Wei Zhang, Chih-Yen Lee, Joe Kao	Joe Kao
C-P-212	The role of Ar flow rate in enhancing the size of heteroepitaxial WS_2 flakes synthesized on c-sapphire using H_2S gas-source CVD	Kun-An Chiu	Taiwan Instrument Research Institute, National Applied Research Laboratories, Taiwan	Kun-An Chiu, Wei-Chun Chen, Hua-Lin Chen, Yu-Wei Lin, Che-Chin Chen, Hung-Pin Chen, and Fong-Zhi Chen	Kun-An Chiu
C-P-214	Effect of mechanical stress on electrical characteristics of low-dielectric-constant dielectric materials	Yi-Lung Cheng	National Chi-Nan University, Taiwan	Yi-Lung Cheng	Yi-Lung Cheng

C-P-216	Defects and Impurities induced structural, Electronic, electrical and magnetic behavioural change of layer by layer deposited $Cd_{0.4}Zn_{0.6}S$ and r-GO composites thin film ($Cd_{0.4}Zn_{0.6}S$:r-GO) Semiconductors	SEKHAR CHANDRA RAY	UNIVERSITY OF SOUTH AFRICA, South Africa	SEKHAR RAY	SEKHAR CHANDRA RAY
C-P-223	Properties of Ruthenium-Cobalt Alloy Thin Films Prepared by Surface-Limited Redox Reaction by Ruthenium Substitution for Cobalt Deposited at Low Potential	Jau Shiung Fang	National Formosa University, Taiwan	Yao Wen Chang, Yin Chi Kuo, Jau Shiung Fang	Yao Wen Chang
C-P-227	Structure and ferroelectric properties of pulsed laser deposited $Bi_{0.95}Dy_{0.05}FeO_3$ thin films prepared with deposition rate	Huang-Wei Chang	National Taipei University of Technology, Taiwan	Ting-Kai Lin, Cheng-En Wu, Huang-Wei Chang, Chang-Ren Wang, Da-Hua Wei, Chi-Shun Tu, and P.Y. Chen	Ting-Kai Lin
C-P-228	Corrosion behavior of Co-Ru Alloy Thin Films Prepared by Electrochemical Co-deposition on $TiSi_2$.	Jau-Shiung Fang	National Formosa University, Taiwan	Jau-Shiung Fang, Shao-Tung Fang, Min-Lin Huang	Jau-Shiung Fang
C-P-229	Characteristics of Al-based intermetallic compounds as a next-generation interconnect material	Jau-Shiung Fang	National Formosa University, Taiwan	Jau-Shiung Fang, Jum Neng Zhan, Shao-Tung Fang, Yao Wen Chang	Jau-Shiung Fang
C-P-246	Comparison of metal drift in SiO_2 film for Co, Ru, and CoRu	Yi-Lung Cheng	National Chi-Nan University, Taiwan	Hao-Wei Zhang, Joe Kao, and Yi-Lung Cheng	Yi-Lung Cheng
C-P-265	Improved the Performance of Blue-light MicroLEDs with Double Passivation Layers	Ray-Hua Horng	National Yang Ming Chiao Tung University, Taiwan	Yu-Hsuan Hsu, Xin-Dai Lin, Yi-Hsin Lin, Ray-Hua Horng	Yu-Hsuan Hsu
C-P-270	Comparison of performance in GaN-HEMTs on SiC and on Sapphire substrates	Ray Hua Horng	National Yang Ming Chiao Tung University, Taiwan	Chia Hao Yu, Tsung Po Chuang,Ray Hua Horng	Chia Hao Yu
C-P-276	Elemental distribution and grain orientation in reaction between $Sn_{3.5}Ag$ and co-sputtering Cu-Ni film	JenqGong Duh	National Tsing Hua University, Taiwan	ZihYou Wu, ChenSung Chao, JenqGong Duh	ZihYou Wu
C-P-279	Application of Crosslinked Polyimide CopolymerNanocomposite Materials as the Gate Dielectrics on Organic Thin Film Transistors	Yang-Yen Yu	Ming Chi University of Technology, Taiwan	Yang-Yen Yu, Jia-Hong Xu, Yu-Chia Huang	Jia-Hong Xu
C-P-282	Study on Optimizing the Performance of NO Gas Sensor Fabricated by $ZnGa_2O_4$ and Circuit Module Development	Ray-Hua Horng	National Yang Ming Chiao Tung University, Taiwan	Zong-Ying Shen, Chun-Wei Chiu, Chiung-Yi Huang and Ray-Hua Horng	Zong-Ying Shen
C-P-295	Synthesis of colloidal $CsPbBr_3$ nanoplates for fabr	Ming-Hsien Li	National Chi Nan University, Taiwan	Kai-Hsiang Hsu, Kuo-Wei Huang, Cheng-Shan Chen, Peter Chen, and Ming-Hsien Li	Ming-Hsien Li
C-P-300	Low-Temperature Direct Wafer Bonding by Plasma Activation	Ray-Hua Horng	National Yang Ming Chiao Tung University, Taiwan	William Anderson Lee Sanchez, Ray-Hua Horng	William Anderson Lee Sanchez
C-P-302	Assessment of thermoplastic-coated encapsulant with for PV recycling	Hsin-Hsin Hsieh	Industrial Technology Research Institute, Taiwan	Hsin-Hsin Hsieh, Syh-Homg Chen, Wei-Lun Yang, Chiou-Chu Lai, Min-Tsung Kuan, Ta-Ming Kuan, Li-Piin Song, Xiaohong Gu, Min-An Tsai	Hsin-Hsin Hsieh

C-P-306	Defects properties in vanadium doped zinc oxide piezoelectric presser sensor	Jow-Lay Huang	National Cheng Kung University, Taiwan	Heng-Chi Chu, Sanjaya Brahma, Jow-Lay Huang	Heng-Chi Chu
C-P-330	UV-curable conductive paste for screen-printed electronics on textiles	Ying-Chih Liao	National Taiwan University, Taiwan	Ding-Hong Weng, Chia-Pei Chu, Ying-Chih Liao	Ding-Hong Weng
C-P-34	Atomic Layer Deposition of High-Quality Pt Thin Films Using DDAP Precursor	Se-Hun Kwon	Pusan National University, Korea	Myung-Jin Jung, Woo-Jae Lee, Se-Hun Kwon	Myung-Jin Jung
C-P-342	The Property of Two-Dimensional RP Phase Perovskite Can-1Mnn-3Nb3O3n+1- (n=4,5,6) nanosheets with different centrifugal for Water splitting and Supported on Chlorella for Hydrogen Evolution	Yen-Hsun Su	National Cheng Kung University, Taiwan	Yao-Yuan Chang	Yao-Yuan Chang
C-P-358	Fabrication of High-Quality van der Waals Hetero-bilayer of MoS_2/PtS_2 for Sensor Applications	Chun-Ming Chang	Da-Yeh University, Taiwan	Yan-Si Jiang, Sin-Liang Ou, Yi-Chen Hsiao, Xiang-Bin Yang, Sheng-Jie Huang, Chun-Ming Chang	Yan-Si Jiang
C-P-364	Sputtering deposition of SiO_2 thin film on single crystal diamond	L. Chang	National Yang Ming Chiao Tung University, Taiwan	F.L. Kuan, L. Chang	Fan Ling Kuan
C-P-370	Synthesis of $ZnCo_2O_4$ on Carbon Paper Electrodes in Chloroplasts Photoelectrochemical Water Splitting	Yen-Hsun Su	National Cheng Kung University, Taiwan	Chien-Yu Lin, Chia-Wei Chang, Yen-Hsun Su,	Chien-Yu Lin
C-P-373	Metal electrodes induced optoelectronic artificial synapses in reactive sputtering In_2O_3 thin films	Pang Shiu Chen	MingHsin University of Science and Technology, Taiwan	En_lin Chen, Mu Xsun Lee, Chao An Jung, Ming Hung Lee, Pang Shiu Chen	En Lin Chen
C-P-382	Microstructural Characterization of Metal-Semiconductor Interface of Electroless Au contacts on CdTe Single Crystal	Ondřej Šik	Brno University of Technology, Czech Republic	Ondřej Šik, Petr Bábor, Michal Potoček, Eduard Belas	Ondřej Šik
C-P-386	Robust Preparation to the Transparent and Conductive Thin Film of Stable Silver-Nanowire Suspension	Chih-Yu Kuo	National Taipei University of Technology, Taiwan	Chih-Yu Kuo, Yue-Ci Wu, Pei-Wen Chen, Wen-Yen Chiu, Trong-Ming Don	Yue-Ci Wu
C-P-395	Carboxylate-Substituted Fluorination Polythiophenes for Enhanced Non-Fullerene Polymer Solar Cells	Li-Yun Su	Southern Taiwan University Science and Technology, Taiwan	Li-Yun Su, Hong-Yan Tang, Shan-Yu Jhang, Ya-Xian Lin	Hong-Yan Tang
C-P-397	Reactive sputtering deposition of SiN_x thin film on single crystal diamond	Li Chang	National Yang Ming Chiao Tung University, Taiwan	Ming-Min Su	Ming-Min Su
C-P-415	Diamond nucleation and growth on vertically aligned Si substrate in microwave plasma CVD	Li Chang	National Yang Ming Chiao Tung University, Taiwan	Ching-Ho Chen, Kun-An Chiu, Yi Chou, Chen-Wei Ye, Li Chang	Ching-Ho Chen
C-P-423	Study of Bipulse-HiPIMS Deposited ITZO Films for Enhancing Electrical Properties	Wan-Yu Wu	National United University, Taiwan	Wan-Yu Wu, Kai-Shawn Tang, Ying-Xiang Lin, Tsu-Lung Wu, Yue Duo Chen, Po-Liang Liu, Dong-Sing Wuu, Yi-Cheng Lin, Chih-Liang Wang	Kai-Shawn Tang
C-P-440	Phase modulation of BFO using RF-sputtering for electrocatalytic water splitting	Heng-Jui Liu	National Chung Hsing University, Taiwan	Yueh-Lun Lee, Heng-Jui Liu	Yueh-Lun Lee

C-P-451	Analysis of Thin-Film Transistors on Different Bottom-Gate Insulator Processes of Dual-Gate InGaZnO TFTs	Kuan-Wei Lu	National Sun Yat-sen University, Taiwan	Kuan-Wei Lu	Kuan-Wei Lu
C-P-461	Study on the annealing conditions for growing La-doped $BaSnO_3$ thin films by magnetron sputtering in pursuit of high flatness	Teng-Yuan Wang	National Dong Hwa University, Taiwan	De-Jing Peng, Yi-Jia Chen, Teng-Yuan Wang	De-Jing Peng
C-P-462	Using magnetron sputtering $BaSnO_3$ doped with different proportions of La on the sapphire substrate and observe the thin film and analyze the microstructure	Yeh-Kai Yin	National Dong Hwa University, Taiwan	Yeh-Kai Yin, Yi-Jia Chen	Yeh-Kai Yin
C-P-464	Nanoscale Multi-Domain Switching and Thickness Scaling Impact in Dopant-Free Hafnium-Oxide Ferroelectric Devices	Chun-Hu Cheng	National Taiwan Normal University, Taiwan.	Chia-Chi Fan, Hsuan-Han Chen, Ruo-Yin Liao, Wu-Ching Chou, Hsiao-Hsuan Hsu and Chun-Hu Cheng	Ruo-Yin Liao
C-P-465	Effect of Deposition Sequence on the Electrical Characteristics of Hafnium Aluminum Oxide Under Thickness Scaling	Chun-Hu Cheng	National Taiwan Normal University, Taiwan	Chia-Chi Fan, Hsuan-Han Chen, Ruo-Yin Liao, Wu-Ching Chou, Hsiao-Hsuan Hsu and Chun-Hu Cheng	Ruo-Yin Liao
C-P-467	Analysis of Dynamic Negative Bias Temperature Instability Degradation in P-type Low-temperature Polycrystalline Silicon Thin-film Transistors	Hsin-Chieh Chang	National Sun Yat-sen University, Taiwan	Hsin-Chieh Chang	Hsin-Chieh Chang
C-P-469	Electrical Characteristics Investigation of Ferroelectric Hafnium-Aluminum Oxide Memory Using Plasma-Treated Bottom Electrode	Hsiao-Hsuan Hsu	National Taipei University of Technology, Taiwan	Cun-Bo Liu, Ruo-Yin Liao, Hsuan-Han Chen, Kuan-Hung Su, I-Cheng Lin, Ting-An Liang, Ping-Yu Lin, Chen-Hao Wen, Wu-Ching Chou, Hsiao-Hsuan Hsu, Ye Zhou and Chun-Hu Cheng	Ruo-Yin Liao
C-P-470	Improvement of Electrical Characteristics in $HfAlO_x$ Ferroelectric Field-Effect Transistor Using AlO_x Capping Layer	Hsiao-Hsuan Hsu	National Taipei University of Technology, Taiwan	Ruo-Yin Liao, Hsuan-Han Chen, Kuan-Hung Su, I-Cheng Lin, Ting-An Liang, Ping-Yu Lin, Chen-Hao Wen, Wu-Ching Chou, Hsiao-Hsuan Hsu, Su-Ting Han and Chun-Hu Cheng	Ruo-Yin Liao
C-P-482	Heterojunction Photodetector of Bismuth Telluride nanoplate on Zinc Oxide Nanowire Arrays	H. F. Hsu	National Chung Hsing University, Taiwan	WEICHEN HSU	WEICHEN HSU
C-P-488	Structural, Optical, and Electrical Properties of Multi-component P-type Oxide-semiconductor Cu-Mn-Sn-O Thin Films	Bui Nguyen Quoc Trinh	Vietnam National University, Hanoi, Vietnam	Bui Nguyen Quoc Trinh	Bui Nguyen Quoc Trinh
C-P-492	Reduced graphene oxide/titanium dioxide cubic nanorods array/FTO heterojunction for visible-near infrared photodetector	H. F. HSU	National Chung Hsing University, Taiwan	C.S. CHIU, P.S. HUNG, H.F. HSU	C.S. CHIU
C-P-502	New Multilayer Materials for High Electromechanical Coupling Coefficient and Low Temperature Coefficient of Frequency SAW Devices	Sean Wu	Lunghwa University of Science and Technology, Taiwan	Sean Wu, Jow-Lay Huang, Yu-Hsuan Huang	Sean Wu

C-P-527	Heterogeneous integration of single-crystalline rutile thin films with steep phase transition on silicon substrates	Junwoo Son	POSTECH, Korea	Dong Kyu Lee, Yunkyu Park, Sangwook Lee, Jaeyeong He, Junwoo Son	Junwoo Son
C-P-64	Exploring the Efficacy of Synaptic Fluorine-Functionalized Graphene/PMMA Wrapped SiO_2 Nanoparticles as Reliable Phototransistors for Energy-Efficient Artificial	Chia-Yun Chen	National Cheng Kung University, Taiwan	Kuan-Han Lin, Chia-Yun Chen	Kuan-Han Lin
C-P-69	Structure and Optical Properties of MoO Thin Films	Ting-Kan Tsai	National Formosa University, Taiwan	Shih-Tse Tsai, Ting-Kan Tsai, Tsai-Hsin Yang, Tzu-Fan Hsieh	Tsai-Hsin Yang、Tzu-Fan Hsieh
C-P-86	High-Mobility Double Channel Layer In_2O_3/IGZO Thin-Film Transistor Based on PEALD	Shui-Yang Lien	Xiamen University of Technology, China	Zhi-Xuan Zhang, Wen-Zhi Zhang, Qi-Zhen Chen, Peng Gao, Feng-Min Lai, Shui-Yang Lien and Wen-Zhang Zhu	Zhi-Xuan Zhang
C-P-89	Enhanced performance of Zn-doped Ga_2O_3 ultraviolet photodetector using plasma enhanced atomic layer deposition	Shui-Yang Lien	Xiamen University of Technology, China	Hui-Chen Fan, Chen Wang, Yu-Jiao Ruan, Feng-Min Lai, Shui-Yang Lien and Wen-Zhang Zhu	Hui-Chen Fan
C-P-95	Aluminum-doped Hafnium Oxide Thin Film with High Dielectric Constant Deposition by PEALD and its Application in TFT Devices	Shui-Yang Lien	Xiamen University of Technology, China	Han-Bin Chen, Wan-Yu Wu, Peng Gao, Feng-Min Lai, Shui-Yang Lien and Wen-Zhang Zhu	Han-Bin Chen
C-P-98	Good-performance α-IGZO Thin Film Transistors Fabricated by HiPIMS at Room Temperature	Shui-Yang Lien	Xiamen University of Technology, China	Jia-Hao Yan, Ming-Jie Zhao, Hua Xu, Feng-Min Lai, Shui-Yang Lien and Wen-Zhang Zhu	Jia-Hao Yan
C-P-530	HIGH RATION of RARE EARTH ELEMENTS DOPED YSZ for the THERMAL SPRAYING PROCESS	Yung-Chin Yang	National Taipei University of Technology, Taiwan	Chin Lee, Xi-Zhen Lin, Yen-Chung Chen, I-Lun Chung, Yung-Chin Yang	Chin Lee
B-P-263	Formation of a chromium film and its application to 3 dimension mirror tunnel effect	Nan-Ming Lin	Technology Research Institute, TYC Brother Industrial Co., Ltd, Tainan, TAIWAN	Nan-Ming Lin, Shih-Chang Shei	Nan-Ming Lin

TACT 2023 Half-Day Tour

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缺陷檢測電子顯微鏡

XRF薄膜厚度量測器

聚焦離子束FIB

分析技術

材料分析: MA

失效分析: FA

表面分析: SA

RC薄膜電阻量測器

Particle檢測器

薄膜應力量測器

服務項目

- 結構分析
  - OM
  - SEM
  - EDX
  - FIB
- 表面分析
  - 3D X-Ray
  - AFM
- 膜質分析 (300mm wafer)
  - XRF
  - Particle
  - Elipsometer
  - Resistance

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