

19th Asian Pacific Corrosion Control Conference

第十九届亚太腐蚀控制会议

Conference Organizers/主办单位

Chinese Society for Corrosion and Protection
中国腐蚀与防护学会

University of Science and Technology Beijing
北京科技大学

National Materials Corrosion and Protection Data Center
国家材料腐蚀与防护科学数据中心

Co-organizers/协办单位

Shunde Innovation School, University of Science and Technology Beijing
北京科技大学顺德创新学院

Key Laboratory of Marine Materials and Related Technologies, CAS
中国科学院海洋新材料与应用技术重点实验室

BRI Southeast Asia Network for Corrosion and Protection (MOE)
“一带一路”东南亚环境材料腐蚀与防护教育部野外科学观测研究站

Zhejiang Key Laboratory of Marine Materials and Protective Technologies
浙江省海洋材料与防护技术重点实验室

Beijing Advanced Innovation Center for Materials Genome Engineering
北京材料基因工程高精尖创新中心

Liaoning Academy of Materials
辽宁材料实验室

Committees

Conference Chair

LI Xiaogang, University of Science and Technology Beijing

Scientific Committee

Arjan MOL, Delft University of Technology, the Netherlands

CHEN Tongzhou, China Academy of Machinery Wuhan Research Institute of Materials Protection Co., Ltd.

DU Cuiwei, University of Science and Technology Beijing

DUAN Jizhou, Institute of Oceanology, CAS

DONG Junhua, Institute of Metals, CAS

GUI Taijiang, Marine Chemical Research Institute

Gareth HINDS, National Physical Laboratory, United Kingdom

Günther SCHMITT, Institute for Sustainable and Anticorrosive Technology, Germany

HAN Bing, NCS Testing Technology Co., Ltd.

Herman TERRY, Vrije Universiteit Brussel, Belgium

HU Jiming, Zhejiang University

HU Wenbin, Tianjin University

Ingrid MILOSEV, Josef Stefan Institute, Slovenia

Ivan COLE, RMIT University, Australia

LIU Jing, Shenzhen University

LU Feng, AECC Beijing Institute of Aeronautical Materials

Mikhail ZHELDUDKEVICH, Institute of Surface Science, Helmholtz-Zentrum Hereon, Germany

Nick BIRBILIS, Deakin University, Australia

Oscar MATTOS, Federal University of Rio de Janeiro, Brazil

PENG Xiao, Nanchang Hangkong University

Philippe MARCUS, PSL University, France

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WU Jianhua, Jimei University
WU Yong, China Academy of Machinery Wuhan Research Institute of Materials Protection Co., Ltd.
WU Yumin, Harbin Institute of Technology
XU Likun, Luoyang Ship Material Research Institute
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ZHANG Tao, Northeastern University
ZHANG Zhengjun, Tsinghua University
ZHAO Jingmao, Beijing University of Chemical Technology

Organizing Committee

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WANG Huaiyuan, Tianjin University
WU Liang, Chongqing University
XU Dake, Northeastern University
ZHANG Daquan, Shanghai University of Electric Power
ZHANG Dawei, University of Science and Technology Beijing
ZENG YiMin, Department of National Resources, Canada
ZHANG Lei, University of Science and Technology Beijing
ZHANG Ruiyong, Institute of Oceanology, CAS
ZHANG Fan, University of Sussex, United Kingdom

Conference Secretariat

ZHANG Bowei, University of Science and Technology Beijing

MA Lingwei, University of Science and Technology Beijing

HAO Xiangping, University of Science and Technology Beijing

LOU Yuntian, University of Science and Technology Beijing

FU Zhongheng, University of Science and Technology Beijing

QIAN Hongchang, University of Science and Technology Beijing

LUO Hong, University of Science and Technology Beijing

LIU Chao, University of Science and Technology Beijing

JIN Wanping, Chinese Society for Corrosion and Protection

YANG Jike, Chinese Society for Corrosion and Protection

YANG Fan, Chinese Society for Corrosion and Protection

SUN Hui, Chinese Society for Corrosion and Protection

YU Lu, Chinese Society for Corrosion and Protection

General Information

基本信息

Website/官网

<http://www.19th-apccc.com/>

Opening Hours of the Registration Desk/注册时间

- ✧ 2023.11.16 09:30-22:00
- ✧ 2023.11.17 08:30-22:00
- ✧ 2023.11.18 08:30-12:00

Official Language/官方语言

All sessions will be held in English. Translation will be provided on 17th Nov. morning.

所有分会场均采用英文交流，11月17日上午提供中英文同声传译。

Abstracts/摘要集

The abstracts can be downloaded on the official website.

摘要集可通过大会官网下载。

Emergency number/紧急联系电话

110

Mobile Phones/移动电话

Participants are kindly requested to keep their mobile phones in the off position in the session rooms while session are being held.

会议期间，请自觉关闭通讯工具或将铃声设为振动。

Presentation slides/报告 PPT

Speakers are kindly suggested to copy their slides into the presenting computer 15 mins before the beginning of each session.

报告人请于分会开始前 15 分钟将报告 PPT 拷贝到会场电脑中。

Lunch and Dinner/就餐安排

Date/日期	Time/时间	Location/地点
2023.11.16	Dinner/晚餐 (18:00-20:00)	1F Food Street/一层食街
2023.11.17	Lunch/午餐 (12:00-14:00)	1F Food Street/一层食街
	Dinner/晚餐 (18:00-20:00)	2F Crystal Ballroom/二层丽晶殿
2023.11.18	Lunch/午餐 (12:00-14:00)	1F Food Street/一层食街
	Dinner/晚餐 (18:00-20:00)	1F Food Street/一层食街

Room check out/酒店退房

Please kindly check out before 12:00.

会议酒店退房时间为 12:00 点前。

Contacts/会务组联系方式

Registration/注册: JIN Wanping/靳婉平 15011185793

Receipt/发票: YU Lu/于露 13693526599

Sessions/会场: ZHANG Bowei/张博威 13552178795

Accommodation/住宿: LOU Yuntian/娄云天 15810592017

Abstracts/摘要: HAO Xiangping/郝湘平 13466637810

Exhibition/会展: YANG Jike/杨吉可 13520520296

Plenary Speakers

大会报告专家

❖ **Philippe MARCUS, PSL University, France**

❖ **Lecture: Advanced surface analytical methods for corrosion research**

Prof. Marcus' field of research is surface chemistry, surface electrochemistry, advanced surface analytical methods, and corrosion science, with emphasis on the understanding of the structure and properties of metal and alloy surfaces. Prof. Marcus has published over 400 papers, and his h-index is 85 with the number of 26000+ citations (Google Scholar, 2023). He has received many awards and honors, including the 2005 Uhlig Award from the Electrochemical Society, the 2008 Whitney Award from NACE International, the U.R. Evans Award of the UK Institute of Corrosion in 2010. He was awarded the European Corrosion Medal from the European Federation of Corrosion in 2015, and the Olin Palladium Award from the Electrochemical Society (USA) in 2017. He is an elected Fellow of the Electrochemical Society (2005) and of the International Society of Electrochemistry (2009). Prof. Marcus was President of the European Federation of Corrosion (from 2008 to 2012), and Chairman of the Electrochemical Materials Science Division of the International Society of Electrochemistry. He is currently Chairman of the EFC Working Party on Surface Science and Mechanisms of Corrosion and Protection, Chairman of the Europe Section of the Electrochemical Society, Chairman of the International Steering Committee for the European Conferences on Applications of Surface and Interface Analysis, and President of the French Corrosion Society. He is a member of the Board of Administration of the European Federation of Corrosion, and Head of the Paris Office of EFC.



❖ **FU Anqing, CNPC Tubular Goods Research Institute, China**

❖ **Lecture: Corrosion research progress in oil & gas and new energy materials**

Dr. Anqing Fu is the director of the Corrosion and Protection Center of CNPC (China National Petroleum Corporation) Tubular Goods Research Institute. His research is mainly focusing on the corrosion and protection of oil & gas industry. He was in charge of more than 20 projects, including two National Natural Science Fund Projects, one National Key Research and Development Project, one Shaanxi Provincial Science Fund Project for Distinguished Young Scholars, one CNPC International Cooperation Project, etc. He is the author of 3 books and more than 50 peer-reviewed journal papers, and 5 national standards, and has authorized 15 invention patents. He is the 11th Executive member of the Chinese Society for Corrosion and Protection, the Chairman of the AMPP Xinjiang Club, and the Deputy Secretary General of the Oil & Gas Field Corrosion and Safety Committee. He is the adjunct supervisor of the IOCAS, Xi'an Jiaotong University, Shandong University, Changzhou University, Xi'an Shiyou University. He is the editor of the Journal of Petroleum Science and Engineering (JPSE), Natural Gas Industry, Surface Technology, Journal of Chinese Society for Corrosion and Protection, Equipment Environmental Engineering, and Petroleum Tubular Goods & Instruments. He has received many awards and honors, including the One Hundred Scientists and Scientific workers of China, Shaanxi S&T Young Star, CNPC Outstanding Young Scientist, the 2019 CSCP Outstanding Young Scientist, etc.



❖ Nick BIRBILIS, Deakin University, Australia

❖ Lecture: Towards sustainable corrosion resistant alloys

Professor Nick Birbilis is presently the Executive Dean of the Faculty of Science, Engineering and Built Environment at Deakin University. Nick was previously the Interim Dean and Deputy Dean of the ANU College of Engineering and Computer Science. His research is broadly in the area of materials design, with an emphasis on metallic materials.



Materials characterisation and metal corrosion are usually the key accompanying research themes with a focus on durable and sustainable materials. Nick was previously the Woodside Innovation Chair at Monash University, where he was also the Head of the Department of Materials Science and Engineering. He is a Fellow of the National Association of Corrosion Engineers (NACE, USA), a Fellow of the Electrochemical Society (ECS), a Fellow of the International Society of Electrochemistry (ISE), a Fellow of ASM International and a Fellow of Engineers Australia Inc. Nick has also been awarded numerous awards, including the Batterham Medal from the Australian Academy of Technological Sciences and Engineering and the HH Uhlig Award from the Electrochemical Society. He has authored over 420 publications and is the Editor-in-chief of the interdisciplinary journal npj Materials Degradation, and serves as a long-standing Editor for the journal Electrochimica Acta.

- ❖ **XU Dake, Northeastern University, China**
 - ❖ **Lecture: Demyth mechanism of microbial corrosion to design microbial corrosion resistant materials**
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Prof. Dake Xu is currently the deputy dean in School of Materials Science and Engineering, Northeastern University, China. He received his PhD degree from the Institute for Corrosion and Multiphase Technology, Ohio University in 2013. His research interests fall in mechanism, detection, and mitigation of microbiologically influenced corrosion and antibacterial materials, which is an interdisciplinary research of material science, corrosion and microbiology. He is a fellow of International Association of Advanced Materials (IAAM). He has published more than 130 peer-reviewed journal articles, and he served as editors or guest editors for Journal of Materials Science & Technology, NPJ Material degradation, Bioelectrochemistry and other SCI indexed journals. He recently published a paper named “Microbially mediated metal corrosion” in Nature review microbiology, which was selected as the cover. His recent works regarding the mechanism of microbial corrosion and anti-microbial corrosion material/coating were published in Angewandte Chemie-international Edition and Advanced functional materials.



- ❖ LUO Hong, University of Science and Technology Beijing, China
 - ❖ Lecture: Research progress on environmental degradation of multi-principal high-entropy metal alloys
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Professor LUO Hong is currently a professor at the University of Science and Technology Beijing. His research focuses on advanced corrosion-resistant alloys, electrochemical corrosion theory, hydrogen embrittlement and environmental corrosion mechanisms in metal alloys, as well as high-performance coating design for PEMFC and PEMWE. Prof. Luo has led and participated in 20 projects, including the National Key R&D Program and the National Natural Science Foundation of China. He has published over 150 papers in journals such as Nat. Commun., Mater. Today, and Corros. Sci., accumulating more than 6500 citations (Google Scholar, 2023). Prof. Luo has received numerous awards and honors, such as the Alexander von Humboldt research fellowship, Max-Planck-Institute research fellowship, outstanding young academic award from the Chinese Society for Corrosion and Protection, and the National Young Talent award. He serves as an editorial board member/youth editorial board member for more than 10 SCI journals. Prof. Luo is the executive director of the Hydrogen Energy Division of the IEEE PES Energy Storage Technical Committee, serving as the deputy director of the Key Laboratory of Corrosion and Protection of the Ministry of Education at the University of Science and Technology Beijing. Additionally, he holds the position of the director of the Data Department at the National Materials Corrosion and Protection Scientific Data Center.



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第十九届亚太腐蚀控制会议

Date/时间	Content/内容		Location/地点
2023.11.16	9:30-22:00	Registration 注册报到	China Hotel, Guangzhou Lobby 广州中国大酒店 大堂
2023.11.17	8:30-11:50	Opening Award Ceremony Plenary Lectures 开幕式、颁奖典礼及 大会报告	Crystal Ballroom 丽晶殿
	13:30-18:00	Sessions 分会报告	Refer to the "Sessions Information" 详见“分会安排”
2023.11.18	8:30-18:00	Sessions 分会报告	Refer to the "Sessions Information" 详见“分会安排”

Opening Ceremony & Plenary Lectures

开幕式及主旨报告议程

Time	Content		Chair
8:30-8:50	Opening Remarks		ZHANG Dawei
	Award Ceremony		
8:50-8:55	Group Photo		
Time	Plenary Lectures	Speaker	Chair
8:55-9:25	Advanced surface analytical methods for corrosion research	Philippe MARCUS	ZHANG Dawei
9:25-9:55	Corrosion research progress in oil & gas and new energy materials	FU Anqing	
9:55-10:20	Tea Break		
10:20-10:50	Towards sustainable corrosion resistant alloys	Nick BIRBILIS	ZHANG BoweI
10:50-11:20	Demyth mechanism of microbial corrosion to design microbial corrosion resistant materials	XU Dake	
11:20-11:50	Research progress on environmental degradation of multi-principal high-entropy metal alloys	LUO Hong	

Session Information

分组报告安排

No.	Session/议题	Time/时间	Location/地点
1	Advanced Corrosion-resistant Metal Materials 先进耐蚀金属材料	11.17 13:30-17:45 11.18 08:30-17:10	Jade Room 翡翠厅
2	Advanced Coatings and Surface 先进涂层与表面	11.17 13:30-17:50 11.18 08:30-15:10	Diamond Room 钻石厅
3	Green Corrosion Inhibitors and Applications 绿色缓蚀剂与应用	11.17 13:30-17:50	Function Room No.1 第一宴会厅
4	Natural Environmental Corrosion 自然环境腐蚀	11.17 13:30-17:45 11.18 09:00-11:35	Function Room No.2 第二宴会厅
5	High-temperature Corrosion and Oxidation 高温腐蚀与氧化	11.18 08:30-16:40	Function Room No.1 第一宴会厅
6	Hydrogen Embrittlement/ Stress Corrosion Cracking 氢脆/应力腐蚀	11.17 13:30-17:30 11.18 08:30-17:00	Function Room No.3 第三宴会厅
7	Biocorrosion and MIC 生物/微生物腐蚀	11.17 14:00-18:00 Function Room No.4/第四宴会厅 11.18 14:00-15:20 Function Room No.2/第二宴会厅	
8	Corrosion Electrochemistry and Applications 腐蚀电化学与应用	11.18 08:30-17:50	Function Room No.4 第四宴会厅

Advanced Corrosion-resistant Metal Materials

Session Convener: Michael Rohwerder/WU Liang

Session Co-ordinator: LUO Hong

2023.11.17 13:30-17:45

Jade Room

Time	Lecture	Affiliation	Speaker
✧ Session Chair: WU Liang/SHEN Zhao			
13:30-13:55 Keynote	Sputtering, a bottom-up approach for developing protective coatings	University of Coimbra, Portugal	Albano CAVALEIRO
13:55-14:20 Keynote	Designing of the high corrosion-resistant magnesium alloy	Northeastern University	ZHANG Tao
14:20-14:40	The different secondary phase particle effects on the high-temperature oxidation of Mg-RE alloys	Shanghai Jiao Tong University	SHEN Zhao
14:40-15:00	Investigation of oxide nano-porosity in zirconium alloys using machine-learning and 3D reconstruction	Fudan University	ZHANG Hongliang
15:00-15:20	Probing the effects of CO ₂ and H ₂ S on pitting sensitivity and pitting growth kinetics of nickel-based alloy 028	China University of Petroleum	SUN Jianbo
15:20-15:40	Tea Break		
✧ Session Chair: WU Liang/SHEN Zhao			
15:40-16:05 Keynote	Transformational discovery methods for corrosion protection in a circular economy	RMIT, Australia	Ivan COLE
16:05-16:25	A new strategy for lithium salt sealing of porous anodic aluminum oxide film	Chongqing University of Technology	MA Yanlong
16:25-16:45	First-principles study on the influence of microstructural properties of oxide film on corrosion resistance of Zr alloys	Shanghai University	XIE Yaoping
16:45-17:05	Corrosion of Zr-xTi-yNb alloys in concentrated nitric acid at elevated temperature	Northwestern Polytechnical University	WANG Xianzong
17:05-17:25	Bridge for the thermodynamics and kinetics of electrochemical corrosion: Designing a corrosion-resistant HP-13Cr stainless steel by Cu micro-alloying for use in an H ₂ S-containing geothermal environment	Northeastern University	ZHAO Yang
17:25-17:45	Hexafluoroisopropanol based silk fibroin coatings on magnesium alloy with enhanced adhesion, corrosion resistance and biocompatibility	Anhui University of Technology	YANG Kang

2023.11.18 08:30-12:05

Jade Room

Time	Lecture	Affiliation	Speaker
✧ Session Chair: ZHANG Hongliang/MA Yanlong			
08:30-08:55 Keynote	Understanding into properties controlling durability of pre-painted steel sheets	University of Chemistry and Technology Prague, Czech Republic	Tomas PROSEK
08:55-09:20 Keynote	Advance in corrosion mechanisms of magnesium alloys	Shandong University of Science and Technology	ZENG Rongchang
9:20-9:40	Designing for corrosion resistant alloys based on “dissolution-diffusion-deposition” model	Northeastern University	FENG Hao
9:40-10:00	A Nanostructured TiZrNbTaMo High-entropy Alloy with Exceptional Corrosion Properties for Biomedical Application	Shenzhen University	LIAO Weibing
10:00-10:20	Constructing an in-situ self-repairing film on magnesium for restricting corrosion	Taiyuan University of Technology	HOU Lifeng
10:20-10:40	Tea Break		
✧ Session Chair: ZHANG Hongliang/MA Yanlong			
10:40-11:05 Keynote	The oxygen evolution reaction drives passivity breakdown for Ni-Cr-Mo alloys reveal by multimodal in-situ synchrotron-based study	KTH Royal, Sweden	PAN Jinshan
11:05-11:25	Performance evaluation and corrosion behavior study of titanium alloy pipes in marine corrosion environments	Guobiao (Beijing) Testing & Certification Co., Ltd.	HAO Xuelong
11:25-11:45	Study on corrosion and wear behavior and mechanism of repaired alloy coatings on oil and gas drilling equipment/tools	Southwest Petroleum University	WANG Qinying
11:45-12:05	Corrosion behaviors of hot-dip galvanized and Zinc-Aluminum-Magnesium coated steels	Research Institute of Technology of Shougang Group Co., Ltd.	SHAO Rong

2023.11.18 13:30-17:10

Jade Room

Time	Lecture	Affiliation	Speaker
✧ Session Chair: DENG Min/ZHANG You			
13:30-13:50	Exceptionally high corrosion resistance of Mg enabled by Ca micro-alloying	Hebei University of Technology	DENG Min
13:50-14:10	Improved corrosion resistance of laser melting deposited CoCrFeNi-series high-entropy alloys by Al addition	Ningbo University	LU Siyuan
14:10-14:30	In-situ studies of rust layer formed on N80 steels alloyed with rare earth elements	Shanghai University	GUO Liya
14:30-14:50	An ionic liquid-assisted strategy for enhanced anticorrosion of low-energy PEO coatings on magnesium–lithium alloy	Beijing University of Petrochemical Technology	ZHANG You
14:50-15:10	Fretting crevice corrosion of high-speed rail steel U75V with PA66 liner	Institute of Oceanology, Chinese Academy of Sciences	WANG Zexian
15:10-15:35	Tea Break		
✧ Session Chair: DENG Min/ZHANG You			
15:35-16:00 Keynote	Beneficial aspects of corrosion: How corrosion can be beneficial in the field of nanotechnology	Cairo University, Egypt	Randa Abdel KARIM
16:00-16:20	Hydrogen embrittlement in additively manufactured ultra-high strength maraging steels: from mechanistic understanding to H-tolerant structure design	Wuhan University of Science and Technology	ZHANG Shiqi
16:20-16:40	Evaluating the dissolution corrosion resistance of hastelloy exposed to liquid bismuth eutectic at 500 °C	Sun Yat-sen University	SHI Jiajian
16:40-16:55	Corrosion thermodynamics diagram of aluminum alloy in the semiconductor manufacturing industry	Northeastern University	WANG Xiaohan
16:55-17:10	Data-driven identification and experimental verification of optimal Sn microalloying composition for corrosion resistance in low-alloy steel	University of Science and Technology Beijing	YANG Liu

Advanced Coatings and Surface

Session Convener: Arjan MOL/WANG Huaiyuan

Session Co-ordinator: MA Lingwei

2023.11.17 13:30-17:50

Diamond Room

Time	Lecture	Affiliation	Speaker
✧ Session Chair: Herman TERRYN/WANG Jun			
13:30-13:55 Keynote	From inhibitor mobility in active protective coatings to local inhibitor-metal microstructure interactions	Delft University of Technology, the Netherlands	Arjan MOL
13:55-14:20 Keynote	Progress of advanced coatings for energy and resource utilization	Tianjin University	WANG Huaiyuan
14:20-14:40	Research on carbon emission calculation method of steel pipelines based on the coupling of life cycle model and corrosion model	Southwest Petroleum University	TANG Junlei
14:40-15:00	Assessment of anticorrosion properties of chromium-free Zn flake coatings with a silane coupling agent	Vietnam Institute of Science and Technology	Le Ba THANG
15:00-15:20	Development and application of waterborne coatings for high speed electric multiple units	Zhejiang Institute of Tianjin University	WANG Ruitao
15:20-15:40	Surface treatment of recycled aluminium and its effect on filiform corrosion	Norwegian University of Science and Technology	Andreas ERBE
15:40-16:00	Tea Break		
✧ Session Chair: Arjan Mol/WANG Huaiyuan			
16:00-16:25 Keynote	Advanced electrochemical and spectroscopic monitoring & modelling of transport of water and ions in organic coatings of metal	Vrije Universiteit Brussel, Belgium	Herman TERRYN
16:25-16:50 Keynote	Adhesion mechanism of typical fouling organisms and optimization of anti-fouling coatings	Harbin Engineering University	WANG Jun
16:50-17:10	Anti-corrosion performance of electroless Ni-Mo-P coating in supercritical CO ₂ -H ₂ S environment	China University of Petroleum (East China)	SUN Chong
17:10-17:30	Green surface protection programme for marine microbiologically influenced corrosion and biofouling	Institute of Metal Research, Chinese Academy of Sciences	ZHAO Jinlong

17:30-17:50	Interface strengthening of fiber reinforced composite coating and erosion resistance mechanism	Chinese Acad Sci, Ningbo Inst Mat Technol & Engn	WU Yinghao
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2023.11.18 08:30-12:10

Diamond Room

Time	Lecture	Affiliation	Speaker
✧ Session Chair: Raman SINGH/YU Mei			
08:30-08:55 Keynote	Conversion coatings and their role in the protection of different alloys	Josef Stefan Institute	Ingrid MILOSEV
8:55-9:20 Keynote	Living multifunctional coating materials fabricated via biomineralization	Shanghai Maritime University	GUO Na LIU Tao
9:20-9:40	Carbon nitride thin films for photocathodic protection of metals	Hebei University of Technology	SI Wenping
9:40-10:00	Advancing concrete durability with graphene oxide-based coatings against rebar corrosion	Iran Institute of Color Science and Technology	Mahdavian MOHAMMAD
10:00-10:20	Corrosion behaviors of multilayer C/Cr/SS bipolar plates for proton exchange membrane fuel cells under dynamic potential polarization based on New European Driving Cycle	Northwestern Polytechnical University	WANG Xianzong
10:20-10:40	Tea Break		
✧ Session Chair: Mahdavian MOHAMMAD/LIU Tao			
10:40-11:05 Keynote	Innovative surface modification for enabling CVD graphene coating on steels for remarkable corrosion resistance	Monash University	Raman SINGH
11:05-11:30 Keynote	Passive film and its influence on surface properties of titanium alloy	Beihang University	YU Mei
11:30-11:50	Regulation mechanism of the catalytic reactivity and structural phase transition law of titanium-based surface coatings	Institute of Chemistry Henan Academy of Sciences	CHEN Siyuan
11:50-12:10	Surface treatment of additively manufactured metal parts to improve corrosion performance: New surfaces, new questions, new challenges!	Vrije Universiteit Brussel, Belgium	Reynier Inocente Revilla CASTILLO

2023.11.18: 13:30-15:10

Diamond Room

Time	Lecture	Affiliation	Speaker
◇ Session Chair: MA Lingwei/CAO Huaijie			
13:30-13:50	Environmental protection coating system for refractory metal alloys in extreme environments	Shanghai Jiao Tong University	SU Ranran
13:50-14:10	A case study on a failed superheater used in a biomass thermal power plant: Metallurgical investigation	Kasetsart University	Thee CHOWWANO NTHAPUNYA
14:10-14:30	Preparation and corrosion protection mechanism of MXene-based composite coatings on metals	Shanghai University of Electric Power	CAO Huaijie
14:30-14:50	Enhanced active corrosion protection coatings for carbon steel	Harbin Engineering University	WANG Yanli
14:50-15:10	Gradient Cu ²⁺ releasing rate enhanced the antibacterial, cytocompatibility, and degradation resistance of Cu-containing PEO coated pure Mg	Southeast University	QIAN Kun

Green Corrosion Inhibitors and Applications

Session Convener: Ambrish Singh/ZHANG Daquan

Session Co-ordinator: QIANG Yujie

2023.11.17 13:30-17:50

Function Room No.1

Time	Lecture	Affiliation	Speaker
✧ Session Chair: ZHANG Guoan/Mikhail Zheludkevich			
13:30-13:55 Keynote	Inhibition of duplex steel in acidizing of sour wells	Institute for Sustainable and Anticorrosive Technology, Germany	Günther SCHMITT
13:55-14:20 Keynote	Targeted collaborative treatment of steel corrosion in concrete structures under high chloride environment	North China University of Water Resources and Electric Power	LI Weihua
14:20-14:40	Investigation on bio-based melatonin as corrosion inhibitors for AA5052 aluminum alloy in 3wt.% NaCl solution	Shanghai University of Electric Power	ZHANG Daquan
14:40-15:00	Organic-inorganic complexes as a novel sustainable corrosion inhibitor for metallic substrate	Vietnam Institute of Science and Technology	Nguyen Thi Thu TRANG
15:00-15:20	Inhibition mechanism of stability for MXene colloidal dispersions by carboxylates	Beijing Technology and Business University	FAN Baomin
15:20-15:40	Construction and inhibition mechanisms of green biomass and carbon dot corrosion inhibitors	Chongqing University	LI Wenpo
15:40-16:00	Tea Break		
✧ Session Chair: ZHANG Daquan/Ambrish Singh			
16:00-16:25 Keynote	Active learning approach towards discovery of new efficient corrosion modulators	Helmholtz-Zentrum Hereon, Germany	Mikhail ZHELUDKEVICH
16:25-16:50 Keynote	New and traditional techniques used in corrosion inhibition monitoring	Nagaland University, India	Ambrish SINGH
16:50-17:10	Mechanism and inhibition control of supercritical CO ₂ corrosion in oil and gas pipelines	Huazhong University of	ZHANG Guoan

		Science and Technology	
17:10-17:30	Progress in research on sustainable corrosion inhibitors	Aligarh Muslim University, India	Mohammad MOBIN
17:30-17:50	Calcium nitrite services as corrosion inhibitor of rebar in magnesium phosphate cement	Chang'an University	LI Jun



Natural Environmental Corrosion

Session Convener: Ekkarut Viyanit/DONG Junhua

Session Co-ordinator: ZHANG Bowei

2023.11.17 13:30-17:45

Function Room No.2

Time	Lecture	Affiliation	Speaker
✧ Session Chair: Norinsan Kamil OTHMAN/DONG Junhua			
13:30-13:55 Keynote	Corrosion testing in deep-sea environment: method, practice and standardization	Luoyang Ship Materials Research Institute	XU Likun
13:55-14:20 Keynote	Unveiling the phase transformation at nano scale	Nanyang Technological University, Singapore	HUANG Yizhong
14:20-14:40	International standardization of corrosion of metals and alloys	China Metallurgical Information and Standardization Institute	LI Qian
14:40-15:00	The design and deposition of the self-lubricant films for green tribology applications	Jiangsu University of Science and Technology	JU Hongbo
15:00-15:15	Exploring the potential of transfer learning in extrapolating accelerated corrosion test data for long-term atmospheric corrosion forecasting	Vrije Universiteit Brussel, Belgium	Vincent VANGRUND ERBEEK
15:15-15:40	Tea Break		
✧ Session Chair: XU Likun/HUANG Yizhong			
15:40-16:05 Keynote	The behaviour of microbial corrosion on API 5L X65 carbon steel in CO ₂ gas environments	The National University of Malaysia, Malaysia	Norinsan Kamil OTHMAN
16:05-16:30 Keynote	Study of corrosion of metals in 3.5% NaCl solution under hydrostatic pressure	Northeastern University	LIU Li
16:30-16:50	Study on seawater corrosion resistance characteristics of B10 pipes with different grain sizes	Qingdao NCS Testing Protection Technology Co.,Ltd.	SUN Dandan

16:50-17:10	Photoelectrochemical effect of Cu ₂ O on the corrosion behavior of Cu	Qingdao University of Science and Technology	LI Jiarun
17:10-17:30	Classification and spatial mapping of environmental corrosivity for power grid	State grid smart grid research institute Co.Ltd	HUANG Luyao
17:30-17:45	Initial localized corrosion induced by multiscale precipitates in the new generation high-strength Al-Zn-Mg-Cu alloy	University of Science and Technology Beijing	XUE Wei

2023.11.18 09:00-11:35

Function Room No.2

Time	Lecture	Affiliation	Speaker
✧ Session Chair: LU Xinpeng			
09:00-09:20	Atmospheric corrosion behavior of low alloy steel in Antarctica environment	Ocean University of China	CUI Zhongyu
09:20-09:40	An RGB-based visualized and nondestructive platform for metal corrosion sensing via OH- induced aggression of phytic acid carbon dots	Guangxi Academy of Sciences	LIAO Xiufen
09:40-10:00	Comparative corrosion analysis of precoated aluminum foil for air conditioner condenser fins under field test and neutral salt-spray (NSS) test	National Electric Apparatus Research Institute Co., Ltd	LIU Miaoran
10:00-10:15	Corrosion behavior of Laser Powder Bed Fusion Al-Mn-Mg-Sc-Zr Alloy	University of Science and Technology Beijing	ZHANG Zequn
10:15-10:40	Tea Break		
✧ Session Chair: CUI Zhongyu			
10:40-11:00	Preliminary exploration of the integration of generative artificial intelligence with corrosion data processing	Towngas Smart Energy Company Limited	LU Xinpeng
11:00-11:20	Detection of the durability of epoxy-coated reinforcement under marine environment in south China for 25 years	CCCC Fourth Harbor Engineering Institute Co., Ltd	ZHANG Dongfang

11:20-11:35	Initial corrosion behavior and mechanism of bogie steel with different heat treatment structures in industrial polluted environments containing S	University of Science and Technology Beijing	SONG Jialiang
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High-temperature Corrosion and Oxidation

Session Convener: ZHANG Jianqiang/Peng Xiao

Session Co-ordinator: CHEN Minghui

2023.11.18 08:30-12:10

Function Room No.1

Time	Lecture	Affiliation	Speaker
✧ Session Chair: GENG shujiang/ZHANG Xiaofeng			
08:30-08:55 Keynote	Metal oxide nanoparticles application in promoting the growth of a more protective oxide scale at high temperatures	Nanchang Hangkong University	PENG Xiao
8:55-9:20 Keynote	(Fe,Co,Ni) ₃ O ₄ spinel coating for solid oxide fuel cell steel interconnect application	Northeastern University	GENG Shujiang
9:20-9:40	Electrochemical fluorination of TiAl alloy and its oxidation performance	Sun Yat-Sen University	WU Liankui
9:40-10:00	Hot corrosion of the sputtered nanocrystalline coating on a single crystal Ni-based superalloy improved by preoxidation	Northeastern University	WANG Jinlong
10:00-10:20	Title Ablation resistance of Ir/HfO ₂ ultra-high temperature thermal protection coating	National University of Defense Technology	LI Fayuan
10:20-10:40	Tea Break		
✧ Session Chair: PENG Xiao/SHEN Zhao			
10:40-11:05 Keynote	High temperature corrosion behavior and degradation mechanism of Yb ₂ Si ₂ O ₇ environmental barrier coatings	Institute of New Materials, Guangdong Academy of Sciences	ZHANG Xiaofeng
11:05-11:30 Keynote	The origin of different morphology of internal oxide precipitates in ferritic and austenitic steels	Shanghai Jiao Tong University	SHEN Zhao
11:30-11:50	Effect of enamel coating thickness on the anti-temperature corrosion behaviour of stainless steel in NaCl and water vapour environments	Northeastern University	PAN Junan
11:50-12:10	Corrosion resistance of 12Cr1MoV and welded Inconel 625 coating on heat exchange surfaces with increasing steam parameters in waste incinerators	Huazhong University of Science and Technology	LI Jianquan

2023.11.18 13:30-16:40

Function Room No.1

Time	Lecture	Affiliation	Speaker
✧ Session Chair: WU Liankui/YANG Yingfei			
13:30-13:55 Keynote	Excellent hot-corrosion and thermal-shock resistance of metal-enamel composite coating on martensitic stainless steel	Dongguan University of Technology	CHEN Ken
13:55-14:20 Keynote	Corrosion behaviour of Ni-based alloys in CO ₂ gas at high temperatures	University of New South Wales	ZHANG Jianqiang
14:20-14:40	Iron oxide fluxing and precipitation in sulphate deposits during heat-resistant alloy corrosion in simulated combustion gas	University of New South Wales	XI Warren
14:40-15:00	New insights into the selective oxidation of Ni-Cr alloys	Nanchang Hangkong University	XIE Yun
15:00-15:20	Tea Break		
✧ Session Chair: CHEN Ken/WANG Jinlong			
15:20-15:40	Hot corrosion behavior and control of single crystal superalloy parts based on service environment	Northeastern University	CHEN Zehao
15:40-16:00	Microstructure and corrosion behavior of AlCrFeNi-based high entropy alloy in high-temperature supercritical CO ₂ environment	China Institute of Atomic Energy (CIAE)	YANG Wanhuan
16:00-16:20	High temperature oxidation performance of modified PtAl coatings	Jinan University	YANG Yingfei
16:20-16:40	Insight into the high-temperature tribological mechanism of VAlTiCrW high entropy alloy film: AlV ₃ O ₉ from tribochemistry	Guangxi University	LU Zhaoxia

Hydrogen Embrittlement/ Stress Corrosion Cracking

Session Convener: LIU Zhiyong/ZHANG Lei

Session Co-ordinator: LIU Zhiyong

2023.11.17 13:30-17:30

Function Room No.3

Time	Lecture	Affiliation	Speaker
✧ Session Chair: Milos B. Djukic			
13:30-13:55 Keynote	Results using a new methodology to test the fatigue of materials in corrosive media at high pressures	Federal University of Rio de Janeiro, Brazil	Oscar MATTOS
13:55-14:20 Keynote	Environmentally assisted cracking of stainless steels – from 3D/4D time-lapse imaging, bipolar electrochemistry, to simulated marine environments	University of Manchester, United Kingdom	Dirk ENGELBURG
14:20-14:40	Quantitatively research of influence of hydrogen on the motion dislocation movement by in situ ETEM	Xi'an Jiaotong University	XIE Degang
14:40-15:00	Multiscale mechanical response of high strength steels under hydrogen loading	Shanghai University	GUO Xiaofei
15:00-15:20	Hydrogen-prompted heterogeneous development of dislocation structure in Ni	Sun Yat-Sen University	SUN Qingqing
15:20-15:40	Tea Break		
✧ Session Chair: YANG Tao			
15:40-16:05 Keynote	New insights and experimental/modeling confirmations of the HELP+HEDE model for the synergistic action of hydrogen embrittlement in metallic materials	University of Belgrade, Serbia	Milos B. DJUKIC
16:05-16:30 Keynote	Defeating hydrogen-induced grain-boundary embrittlement via triggering unusual interfacial segregation in FeCrCoNi-type high-entropy alloys	City University of Hong Kong	YANG Tao
16:30-16:50	Effects of defect and corrosion damage on hydrogen embrittlement susceptibility of pipeline steel in hydrogen-blended natural gas environments	China University of Petroleum (East China)	WANG Cailin
16:50-17:10	Hydrogen-assisted failure in nickel alloys and possible mitigation approaches	Norwegian University of Science and Technology	LU Xu
17:10-17:30	Delayed fracture of high strength mooring chain steel evaluated by the slow strain rate test	Zhengzhou University	LI Songjie

2023.11.18 08:30-11:50

Function Room No.3

Time	Lecture	Affiliation	Speaker
✧ Session Chair: LU Zhanpeng			
08:30-08:55 Keynote	Progress in design of hydrogen embrittlement-resistance high strength steel and prospects	Shenzhen University	LIU Jing
8:55-9:20 Keynote	Correlating oxidation, localized oxidation and stress corrosion cracking of austenitic alloys and weldments in pressurized water reactor primary coolants	Shanghai University	LU Zhanpeng
9:20-9:40	Rendering a predictive and protecting mechanism on stress corrosion cracking: Cleavage dissolution model	Academy of Advanced Technology, Beijing Peace-Test Tech. Co. ltd.	ZHU Longkui
9:40-10:00	Sulfide stress corrosion cracking of dissimilar weld joints in oil and gas environment	Southwest Petroleum University	DONG Lijin
10:00-10:20	Tea Break		
✧ Session Chair: Bambang WIDYANTO			
10:20-10:45 Keynote	Corrosion test result on rotating cage autoclave (RCA) and comparison of some configuration of cage to wall shear stress of corrosion test sample to achieve the better accuracy	Institute of Technology Bandung, Indonesia	Bambang WIDYANTO
10:45-11:10 Keynote	Corrosion characterisation and selections of pipe materials in carbon capture storage and geothermal applications	Zhejiang JIULI Hi-Tech Metals Co., Ltd.	HUA Yong
11:10-11:30	Corrosion challenges of the supercritical CO ₂ transportation pipeline	North China Electric Power University	LI Kaiyang
11:30-11:50	Effect of gradient microstructure induced pre-torsion on hydrogen embrittlement of pure iron	Sun Yat-Sen University	LI Xinfeng

2023.11.18 13:30-17:00

Function Room No.3

Time	Lecture	Affiliation	Speaker
◇ Session Chair: HUANG Feng			
13:30-13:55 Keynote	Improving hydrogen induced cracking susceptibility of high strength acid-resistant submarine pipeline steels via trace-Mg treatment	Wuhan University of Science and Technology	HUANG Feng
13:55-14:20 Keynote	Non-steady electrochemical mechanism of stress corrosion cracking and its protection techniques	University of Science and	LIU Zhiyong

		Technology Beijing	
14:20-14:40	Stress corrosion cracking behavior of micro-arc oxidation coated 7075 aluminum alloy under various heat treatments	Changzhou Institute of Technology	QI Xing
14:40-15:00	Atomic-scale analysis of hydrogen embrittlement in high-strength Al alloys	Xi'an Jiaotong University	ZHAO Huan
15:00-15:20	Microscopic criteria for stress corrosion crack initiation of Monel 400 alloy in hydrofluoric acid vapor	Tianjin University	DAI Hailong
15:20-15:40	Tea Break		
✧ Session Chair: LIU Zhiyong			
15:40-16:00	Effect of microstructure and reversed austenite on the hydrogen embrittlement susceptibility of Ni-Cr-Mo-V/Nb high strength steel	University of Science and Technology Beijing	HAI Chao
16:00-16:20	Enhancing effect of high-temperature water on crack growth of 316LN stainless steel under various loading frequencies	Shanghai University	WU Panpan
16:20-16:40	Effect of Nb alloying on resistance to hydrogen embrittlement in multiphase stainless steel	University of Science and Technology Beijing	LIU Menghao
16:40-17:00	Effect of cold work on stress corrosion cracking behavior of 316L and 316NG stainless steels in high temperature water	Shanghai University	XIE Caibo

Biocorrosion and MIC

Session Convener: XU Dake/ZHANG Ruiyong

Session Co-ordinator: QIAN Hongchang

2023.11.17 14:00-18:00

Function Room No.4

Time	Lecture	Affiliation	Speaker
✧ Session Chair: DUAN Jizhou/LI Yageng			
14:00-14:25 Keynote	Microbial piezo-influenced corrosion (MPIC)	Nanyang Environment & Water Research Institute (NEWRI), Singapore	Federico LAURO
14:25-14:50 Keynote	Marine microbial corrosion mechanisms: Current research progress and prospect	Institute of Oceanology, Chinese Academy of Sciences	DUAN Jizhou
14:50-15:10	MIC mechanism and prevention technology of gathering and transportation system in a shale gas field	China University of Petroleum	LI Yingchao
15:10-15:30	Additively manufactured functionally graded biodegradable porous metal	University of Science and Technology Beijing	LI Yageng
15:30-15:50	Microbiologically influenced corrosion resistance of novel antibacterial high-entropy alloys	Northeastern University	ZHOU Enze
15:50-16:10	Tea Break		
✧ Session Chair: ZENG Yimin/SUN Lidong			
16:10-16:35 Keynote	Laser surface alloying of Ti-based coatings: corrosion and anti-bacterial properties	University of Macau	KWOK ChiTat
16:35-17:00 Keynote	Biocorrosion and bioleaching- 2 sides of the same problem?	Institute of Oceanology, Chinese Academy of Sciences; Technische Universität Bergakademie Freiberg, Germany	Wolfgang SAND
17:00-17:20	Preferential corrosion among different phases in 2205 duplex stainless steel affected by Pseudomonas aeruginosa	Institute of Oceanology, Chinese Academy of Sciences	WU Jiajia

17:20-17:40	Superwetting coatings inside capillary tubes for in-vitro diagnosis	Chongqing University	SUN Lidong
17:40-18:00	Microbiologically influenced corrosion inhibition of carbon steel via biomineralization induced by <i>Shewanella putrefaciens</i>	University of Science and Technology Beijing	LOU Yuntian

2023.11.18 14:00-15:20

Function Room No.2

Time	Lecture	Affiliation	Speaker
✧ Session Chair: LIU Hongwei/HAO Xiangping			
13:30-13:55 Keynote	Addressing corrosion challenges in biofuel production	Department of National Resources, Canada	ZENG Yimin
14:00-14:20	Research progress of fungal corrosion against passive metals	Sun Yat-sen University	LIU Hongwei
14:20-14:40	Study on microbiological corrosion and toxic failure mechanism of copper	Shandong University	DOU Wenwen
14:40-15:00	A rationally designed polymer brush/lubricant coating system for static and dynamic marine antifouling	JiMei University	CHEN Baiyi
15:00-15:20	The influencing mechanism of marine algae-bacteria symbiosis on the corrosion and biofouling of metals	Shandong University	DONG Yuqiao

Corrosion Electrochemistry and Applications

Session Convener: ZHANG Fan/CAO Fahe

Session Co-ordinator: XIA Dahai

2023.11.18 08:30-12:10

Function Room No.4

Time	Lecture	Affiliation	Speaker
✧ Session Chair: DONG Zehua/HU Jie			
08:30-08:55 Keynote	Corrosion in low carbon energy technologies	National Physical Laboratory, United Kingdom	Gareth HINDS
8:55-9:20 Keynote	Design of anti-fouling coatings for marine equipment and in-site diagnosis of coating degradation	Huazhong University of Science and Technology	DONG Zehua
9:20-9:40	High thoroughput electrochemistry corrosion screening in duplex stainless steel: bipolar electrochemistry	Unversity of Science and Technology Beijing	ZHOU Yiqi
9:40-10:00	Chloride susceptibility index (CSI) : An ab initio based corrosion resistance indicator	Beijing Institute of Technology	KE Huibin
10:00-10:20	MOFs corrosion inhibitor with strong adsorption ability and its inhibition effect in cement extract	South China University of Technology	HU Jie
10:20-10:40	Tea Break		
✧ Session Chair: YONG Xingyue/LI Tianshu			
10:40-11:05 Keynote	The role of Mg/MgO interfaces in the accelerated corrosion of additive manufactured Mg alloys	National University of Singapore, Singapore	Daniel John BLACKWOOD
11:05-11:30 Keynote	Interpretation on the fast corrosion process of Mg-alloys using electrochemical impedance spectroscopy	Beijing University of Chemical Technology	YONG Xingyue
11:30-11:50	Explanation of electrochemical behavior of salt film in pit growth based on a new framework for pit stability	Xi'an Jiaotong University	LI Tianshu
11:50-12:10	Electrochemical characterization of pipeline steel corrosion in supercritical CO ₂ transport environments containing impurities	China University of Petroleum	SUN Chong

2023.11.18 13:30-17:50

Function Room No.4

Time	Lecture	Affiliation	Speaker
✧ Session Chair: ZHANG Bo/LIU Pan			
13:30-13:55 Keynote	Enhanced corrosion resistance by engineering crystallography on metals	Songshan Lake Materials Laboratory	ZHANG Bo
13:55-14:20 Keynote	Quantitatively evaluating contribution of intergranular carbides, Cr-depleted zone, and grain boundary to intergranular stress corrosion cracking of Alloy 600 in a simulated boiling water reactors environment with high oxygen concentrations	Tohoku University, Japan	LIU Pan
14:20-14:40	Crevice corrosion behaviors of TA17 titanium alloy and its surface nanocrystalline ion nitriding layer	South China University of Technology	GAO Yan
14:40-15:00	Sequential dual-passivation of Cr and Mn in stainless steel and its applications at high potentials	University of Hong Kong	YU Kaiping
15:00-15:20	Insight into physical interpretation of electrochemical impedance spectra of Mg	Hebei University of Technology	WANG Linqian
15:20-15:40	Tea Break		
✧ Session Chair: CUI Zhongyu/ZHONG Xiankang			
15:40-16:05 Keynote	The research progress on adsorption-desorption of corrosion inhibitor in multiphase flow	Xi'an Jiaotong University	ZHONG Xiankang
16:05-16:30 Keynote	Quantitative estimation of the roles of electrochemical process in the stress corrosion cracking of aluminum alloy in chloride environment	Ocean University of China	CUI Zhongyu
16:30-16:50	Spatially resolved local electrochemical in operando techniques visualize the interface of biodegradable metals	Southeast University	WANG Cheng
16:50-17:10	Research on corrosion behavior of Fe-Ga Alloy in simulated marine environment	Inner Mongolia University of Technology	JIAO Peiying
17:10-17:30	Multiscale study on corrosion electrochemical behavior of pure titanium	Sun Yat-sen University	LI Xinran
17:30-17:50	Effect of heat flow on the corrosion behavior of carbon steel H ₂ SO ₄ solution interface	Guangzhou University	ZHOU Zeyu