

绿色发展专题活动
THEMATIC EVENT ON GREEN DEVELOPMENT

GDF 2025

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GREEN DEVELOPMENT
FORUM · SHENZHEN

June 29-30, 2025 | SHENZHEN

GDF

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GDF 2025

GREEN DEVELOPMENT FORUM · SHENZHEN

ABOUT THE EVENT

活动简介

To foster international sci-tech cooperation, build an open and inclusive innovation ecosystem, and advance academic and professional exchanges, the Green Development Forum · Shenzhen is scheduled to be held in Shenzhen, China on June 29–30, 2025. The Forum will feature a diverse agenda including Opening Ceremony, Roundtable Discussions, Thematic Sessions, Policy Briefing, Science Popularization Lectures, and On-site Investigation. Focusing on three strategic areas of Artificial Intelligence and Information Computing, Materials Engineering and Energy Technology, and Biomedicine and Intelligent Health, the Forum will bring together leading scientists, emerging young talents, and technology professionals from China and abroad for keynote speeches and in-depth discussions. In addition, robust personnel exchange and collaboration will also be pursued to promote global cooperation and innovation.

为促进科技领域的国际合作，支持建设开放包容的创新生态系统，推动学术对话与专业交流，“2025绿色发展专题活动”于2025年6月29日至30日在中国深圳举办。专题活动由开幕式、圆桌交流、专题会议、政策推介、科普讲座、实地调研等环节组成，围绕人工智能与信息计算、材料工程与能源技术、生物医学与智能健康等3个重点方向，邀请中外战略科学家、青年科技人才、企业科技人才进行演讲和讨论，并积极开展人才交流对接等相关活动。

GREEN DEVELOPMENT FORUM · SHENZHEN

EVENT SCHEDULE

活动日程



开幕式&圆桌交流

Opening Ceremony & Roundtable Discussions

	地址：深圳大学城会议中心 204 会议室 Address: Room 204, Conference Center of Shenzhen University Town	
	时间：2025年6月29日（星期日）上午 Time: Morning of Sunday, June 29, 2025	
10:00-10:25	开幕式 Opening Ceremony	
10:25-11:15	圆桌交流 1 Roundtable Discussion I 青年人才如何走好科研之路 How Young Personnel Can Thrive in Scientific Research	
主持人 Chair	杨涛 Tao YANG	挪威大陆架能源资源可持续利用国家中心主席；西湖大学首批云谷教授 Chairman, National Centre for Sustainable Subsurface Utilization of the Norwegian Continental Shelf; Yungu Professor, Westlake University
	张勇民 Yongmin ZHANG	法国国家科学研究中心（CNRS）&索邦大学研究主任；中国浙江中医药大学特聘教授 Research Director (DRE), CNRS, Sorbonne University, France; Distinguished Professor, Zhejiang Chinese Medical University, China
	苏宝连 Baolian SU	比利时那慕尔大学终身教授 Distinguished Professor, University of Namur, Belgium
	卡尔·博尔赫特 Carl Boehlert	美国密歇根州立大学工程学院化学工程与材料科学系教授 Professor, Department of Chemical Engineering and Materials Science (ChEMS), College of Engineering, Michigan State University, United States
	詹姆斯·M·弗拉纳根 James M. Flanagan	英国伦敦帝国理工学院教授；MRes癌症生物学主任 Professor, Imperial College London, United Kingdom; Director, MRes Cancer Biology

11:15-12:00	圆桌交流 2 Roundtable Discussion II 海外青年人才如何赋能绿色产业国际交流与合作 How Can Young Overseas Personnel Facilitate International Exchange and Cooperation in the Green Industry?	
主持人 Chair	陈榆 Yu CHEN	荷兰中国学联主席；荷兰格罗宁根大学经济学博士 Chair, Association of Chinese Students and Scholars in the Netherlands; Ph.D. in Economics, University of Groningen
	郑龙 Long ZHENG	新加坡中国学联主席；新加坡国立大学建筑环境博士后研究员 Chair, Chinese Scholars and Students Association in Singapore; Postdoctoral Research Fellow, Department of the Architectural Environment, National University of Singapore
	钟韶鸿 Shaohong ZHONG	英国中国学联主席；英国牛津大学人工智能博士 Chair, Chinese Students and Scholars Association in the UK; Ph.D. in Artificial Intelligence, University of Oxford
	程亚平 Yaping CHENG	法国中国博士学联主席；法国索邦大学分子化学博士 Chair, Chinese Doctoral Candidates and Scholars Association in France; Ph.D. in Molecular Chemistry, Sorbonne University
	吕立丹 Lidan LV	德国柏林中国博士学联负责人；德国柏林自由大学哲学博士 Director, Chinese Doctoral Candidates and Scholars Association in Berlin; Ph.D. in Philosophy, Free University of Berlin

*以当天实际议程为准 *Agenda is subject to change

专题会议1：生物医药与智能健康
Thematic Session I: Biomedicine and Intelligent Health

地址：深圳大学城会议中心
Address: Conference Center of Shenzhen University Town

时间：2025年6月29日（星期日）下午
Time: Afternoon of Sunday, June 29, 2025

主持人 Chair	张勇民 Yongmin ZHANG	法国国家科学研究中心（CNRS）&索邦大学研究主任；中国浙江中医药大学特聘教授 Research Director (DRE), CNRS, Sorbonne University, France; Distinguished Professor, Zhejiang Chinese Medical University, China
14:05-14:35	结核病防治新型疫苗的研究与开发 Research and Development of Novel Vaccines for Tuberculosis Prevention	
	张勇民 Yongmin ZHANG	法国国家科学研究中心（CNRS）&索邦大学研究主任；中国浙江中医药大学特聘教授 Research Director (DRE), CNRS, Sorbonne University, France; Distinguished Professor, Zhejiang Chinese Medical University, China
14:35-15:05	用于预测治疗反应的表现遗传生物标志物 Epigenetic Biomarkers for Predicting Therapy Response	
	詹姆斯·M·弗拉纳根 James M. Flanagan	英国伦敦帝国理工学院教授；MRes癌症生物学主任 Professor, Imperial College London, United Kingdom; Director, MRes Cancer Biology
15:05-15:35	人类基因组中非编码调控元件的功能研究 Functional Study of Non-coding Regulatory Elements in the Human Genome	
	庞宝旭 Baoxu PANG	荷兰莱顿大学医学中心细胞与化学生物学系首席研究员、副教授 Principal Investigator and Associate Professor, Department of Cell and Chemical Biology, Leiden University Medical Center, the Netherlands
15:35-15:50	茶歇 Tea Break	
15:50-16:20	新型金属有机框架（MOF）生物传感器在血清素检测中的应用评估 Evaluation of a Novel MOF-based Biosensor for the Detection of Serotonin	
	亚瑟·格雷什 Yaser Greish	阿联酋大学化学系材料化学教授 Professor of Materials Chemistry, Department of Chemistry, United Arab Emirates University
16:20-17:00	人工智能驱动癌症液体活检技术 AI-driven Cancer Liquid Biopsy and Precision Medicine	
	孙坤 Kun SUN	深圳湾实验室肿瘤研究所特聘研究员 Principal Investigator, Institute of Cancer Research, Shenzhen Bay Laboratory

专题会议2：材料工程与能源技术
Thematic Session II: Materials Engineering and Energy Technology

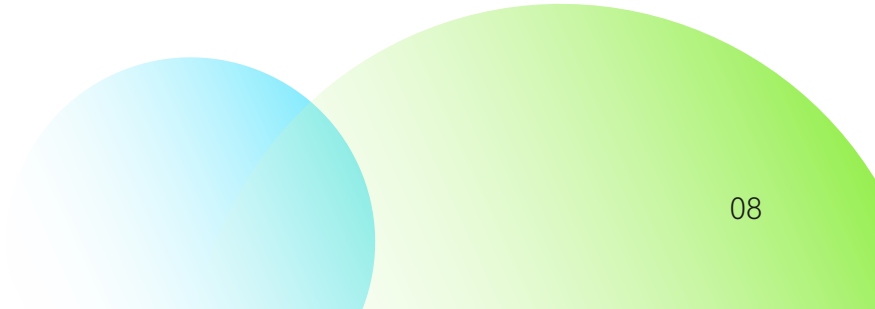
地址：深圳大学城会议中心
Address: Conference Center of Shenzhen University Town

时间：2025年6月29日（星期日）下午
Time: Afternoon of Sunday, June 29, 2025

主持人 Chair	苏宝连 Baolian SU	比利时那慕尔大学终身教授 Distinguished Professor, University of Namur, Belgium
14:05-14:35	创造绿色能源技术新质生产力的孔科学与工程 Pore Science and Engineering for Green Energy	
	苏宝连 Baolian SU	比利时那慕尔大学终身教授 Distinguished Professor, University of Namur, Belgium
14:35-15:05	下一代生物能源：未来能源转型的关键驱动力 Next-Generation Bioenergy: A Key Driver for the Future of Energy Transition	
	杨涛 Tao YANG	挪威大陆架能源资源可持续利用国家中心主席；西湖大学首批云谷教授 Chairman, National Centre for Sustainable Subsurface Utilization of the Norwegian Continental Shelf; Yungu Professor, Westlake University
15:05-15:35	Ti-6Al-4V-1B合金在铸造、铸造-挤压与粉末冶金工艺下的微观结构及力学性能表征 Characterization of the Microstructure, Tensile, Fatigue, and Creep Behavior of Ti-6Al-4V-1B Alloys Processed via Casting, Casting and Extruding, and Powder Metallurgy Routes	
	卡尔·博尔赫特 Carl Boehlert	美国密歇根州立大学工程学院化学工程与材料科学系教授 Professor, Department of Chemical Engineering and Materials Science (ChEMS), College of Engineering, Michigan State University, United States
15:35-15:50	茶歇 Tea Break	
15:50-16:20	废油脂高效制备生物柴油研究 Highly Efficient Production of Biodiesel from Waste Oil	
	李辉 Hui Li	山东建筑大学热能工程学院教授、副院长 Professor and Vice Dean, Department of Thermal Engineering, Shandong Jianzhu University
16:20-17:00	冷态固体中的热载流子：通往高效太阳能电池的新路径 Hot Charge Carriers in Cold Solids for Future High Efficiency Solar Cells	
	伊戈尔·科诺瓦洛夫 Igor Konovalov	德国耶拿应用科学大学光伏与半导体技术教授 Professor of Photovoltaic and Semiconductor Technology, University of Applied Sciences Jena, Germany

专题会议3：人工智能与信息计算
Thematic Session III: Artificial Intelligence and Information Computing

	地址：深圳大学城会议中心 Address: Conference Center of Shenzhen University Town	
	时间：2025年6月29日（星期日）下午 Time: Afternoon of Sunday, June 29, 2025	
主持人 Chair	杨先一 Simon Yang	加拿大圭尔夫大学教授 Professor, University of Guelph, Canada
14:05-14:35	从仿生智能到自主机器人系统 From Bio-inspired Intelligence to Autonomous Robotic Systems	
	杨先一 Simon Yang	加拿大圭尔夫大学教授 Professor, University of Guelph, Canada
14:35-15:05	人工智能赋能环境保护 AI for Environment Protection	
	若昂·伽马 João Gama	葡萄牙波尔图大学经济学院教授 Professor, Faculty of Economics, University of Porto, Portugal
15:05-15:35	新一代无线网络架构 Architectures of Next Generation Wireless Networks	
	帕斯卡尔·洛伦茨 Pascal Lorenz	法国上阿尔萨斯大学教授 Professor, University of Haute-Alsace, France
15:35-15:50	茶歇 Tea Break	
15:50-16:20	面向人机交互的柔性生物界面传感器 Flexible Biointerfacial Sensor for Human-machine Interactive Application	
	郇艳龙 Yanlong TAI	医学成像科学与技术重点实验室、中国科学院深圳先进技术研究院研究员 Professor, Key Laboratory of Medical Imaging and Technology System, Shenzhen Institute of Advanced Technology, Chinese Academy of Sciences
16:20-17:00	新机器人时代的诞生 The Creation of a New Robot Era	
	高桥智隆 Tomotaka Takahashi	日本Robo Garage创始人兼首席执行官；大阪电气通信大学客座教授 Founder and CEO, Robo Garage, Japan; Visiting Professor, Osaka Electro-Communication University, Japan



GUESTS INTRODUCTIONS

嘉宾简介

CDF 2025

THEMATIC SESSION I
BIOMEDICINE AND INTELLIGENT HEALTH

专题会议一：生物医药与智能健康



Yongmin ZHANG
张勇民

TITLE / 职务

Research Director (DRE), CNRS and Sorbonne University, France; Distinguished Professor, Zhejiang Chinese Medical University, China
法国国家科学研究中心 (CNRS) & 索邦大学研究主任; 中国浙江中医药大学特聘教授

BIOGRAPHY / 简介

Prof. Yongmin Zhang is an academicien of the French National Academy of Pharmacy, and Ph.D. supervisor at Sorbonne University. He is currently a Distinguished Professor at Zhejiang Chinese Medical University. He received his B.S. degree in Pharmaceutical Sciences from the Department of Pharmaceutical Sciences of Beijing Medical College, Master and Ph.D. degrees in Medicinal Chemistry from South Paris University in 1982, 1983 and 1986, respectively. From 1986 to 1988, he worked as a Postdoctoral Research Fellow at Beijing Medical University and served as a Visiting Associate Professor and Professor at South Paris University during 1988 to 1990.

Since 1991, he has been employed as a Research Fellow (1991), Tenured Research Fellow (1992), Senior Research Fellow (1995), Research Director (2003) and First-Class Research Director (2013). He has authored over 340 SCI papers and 10 issued patents. In addition, he has given plenary, keynote or invited lectures in over 200 international conferences, universities, industries and research institutes. He has trained more than 60 Ph.D. students.

His current research interests include biologically active oligosaccharides and polysaccharides, glycosphingolipids, carbasugars, azasugars, glycovaccines, modified cyclodextrins, and fullerene chemistry, aiming at the carbohydrate-based drug development.

Dr. Zhang is currently Co-Editor-in-Chief of the *Journal of Dermatologic Science and Cosmetic Technology* and serves on the editorial boards of high-profile international academic journals including the *European Journal of Medicinal Chemistry*, *Chinese Chemical Letters*, et al.

Yongmin ZHANG 张勇民

张勇民博士现任法国国家药学院院士、法国索邦大学博士生导师、浙江中医药大学特聘教授。张勇民院士于1982年在北京医学院药理学系（现北京大学药学院）获得药理学学士学位，于1983年和1986年在巴黎第十一大学（巴黎南大学）分别获得药物化学硕士学位和药物化学法国国家博士学位。1986年至1988年在北京医科大学（现北京大学医学部）从事博士后研究，1988年至1990年在巴黎第十一大学分别担任访问副教授和访问教授。自1991年起，被法国国家科学研究中心（CNRS）聘为研究员（1991年）、终身研究员（1992年）、高级研究员（1995年）、主任研究员（2003年）和一级主任研究员（2013年）。2008年当选法国国家药学院通讯院士，2012年被增选为正式院士。2014年当选为法国国家药学院理事会理事和巴黎分子化学研究所（IPCM）理事会理事。现已发表SCI论文340余篇，获授权发明专利10项，受邀在国际会议、国内外大学和研究机构作主题报告或特邀报告200余次。主持并参与了中、法、欧盟和国际间合作研究项目40多项，培养博士生和博士后60余名。张勇民院士目前的研究领域包括生物活性寡糖的合成，糖脂、碳糖与氮杂糖的化学合成与活性评价，植物多糖成分的分离、提取、纯化、结构鉴定及其活性研究，环糊精的化学修饰和水溶性富勒烯的合成与生物学研究，并致力于糖类疫苗和药物的研究与开发。此外，还现任*Journal of Dermatologic Science and Cosmetic Technology*共同主编，*European Journal of Medicinal Chemistry*, *Chinese Chemical Letters*等高水平国际学术期刊编委会委员。

SPEECH TOPIC / 演讲主题

Research and Development of Novel Vaccines for Tuberculosis Prevention
结核病防治新型疫苗的研究与开发

Yongmin ZHANG
张勇民

ABSTRACT / 摘要

Tuberculosis (TB) is caused by bacteria (*Mycobacterium tuberculosis*) and it most often affects the lungs. Every year, 10 million people fall ill with TB, and 1.5 million people die from TB – making it the world’s top infectious killer. Ending the TB epidemic by 2035 is one of the health-related targets of the United Nations Sustainable Development Goals. Although tuberculosis is curable by administering medicine, the efficacy of drugs is limited by multiple drug resistance (MDR) and extensively-drug resistance (XDR), leading to vaccination as still being the ideal method of fighting against TB. However, BCG (*Bacillus Calmette-Guérin*) is the only licensed vaccine against TB and it is only effective for children. Thus, there remains an urgency to develop novel vaccines for TB prevention. Since different glycoforms of the glycolipid lipoarabinomannan (LAM) exposed outside the *Mycobacterium tuberculosis* (M.TB) membrane were proven to stimulate the production of specific antibodies and this antigen is one of the most important in the BCG vaccine, the conjugation of the arabinomannan (AM) part with protein has attracted our interests and we have been working on such a strategy for development of new and efficient TB-vaccines. This presentation will cover the synthesis of different oligosaccharides both in linear and branched form derived from LAM by using the modern glycosylation techniques, as well as a chemo-enzymatic approach to effectively achieve the target molecules. The conjugation of synthetic compounds with protein and evaluation of the glycoproteins obtained as potential antigens will also be discussed.



James M.
Flanagan

詹姆斯·M·弗拉纳根

TITLE / 职务

Professor, Imperial College London, United Kingdom; Director, MRes Cancer Biology Programme
英国伦敦帝国理工学院教授； MRes癌症生物学主任

BIOGRAPHY / 简介

Prof. Flanagan completed his Ph.D. in 2002 at the Queensland Institute of Medical Research (QIMR), Brisbane, Australia, and subsequently undertook post-doctoral research in Cancer Genetics (QIMR, 2002–2004), Epigenetics (University of Toronto, 2004–2006), and Cancer Epigenetics (University College London, 2006–2009). He was awarded a Breast Cancer Campaign Scientific Fellowship at Imperial College London (2009–2014) and was appointed Senior Lecturer in 2014 and Reader in 2019. In 2024 he became Professor of Informatics in the Division of Cancer, Department of Surgery and Cancer, Faculty of Medicine, Imperial College London.

He received the British Association for Cancer Research Translational Researcher Award in 2011 and is the Principal Investigator of the Cancer Research UK (CRUK)-funded Cancer Loyalty Card Study (CLOCS), which aims to reduce delays in cancer diagnosis using everyday data. In 2023 the CLOCS team won a prestigious DatalQ Award. Since 2021 he has served as Director of the MRes Cancer Biology.

詹姆斯·M·弗拉纳根教授于2002年在澳大利亚布里斯班昆士兰医学研究所获得博士学位，随后分别在昆士兰医学研究所（2002–2004）、多伦多大学（2004–2006）及伦敦大学学院（2006–2009）从事癌症遗传学与表观遗传学领域的博士后研究。他曾获得乳腺癌运动基金会科学奖学金（帝国理工学院，2009–2014），并于2014年晋升为高级讲师，2019年晋升为副教授；2024年，被任命为帝国理工学院医学院外科与癌症系信息学教授；2011年，荣获英国癌症研究协会转化研究者奖，并担任“癌症忠诚卡研究”（CLOCS）项目首席研究员。该项目由英国癌症研究基金会资助，旨在利用日常数据减少癌症早期诊断的延误。2023年，该团队荣获DatalQ奖项。此外，自2021年起，弗拉纳根教授出任帝国理工学院癌症生物学硕士（MRes）研究课程主任。

James M. Flanagan

詹姆斯·M·弗拉纳根

SPEECH TOPIC / 演讲主题

Epigenetic Biomarkers for Predicting Therapy Response
用于预测治疗反应的表观遗传生物标志物

ABSTRACT / 摘要

Why do biomarkers rarely make it to the clinic? One of the reasons is a distinct lack of validation in the literature for the majority of biomarkers reported. Another reason is frequently a lack of a mechanisms defining how the biomarkers mediate the clinical outcome. We have previously reported a biomarker for platinum-based chemotherapy response in relapsed ovarian cancer patients. In our recent work, we are trying to address these research gaps to improve the possible route to clinic.

Platinum-based chemotherapy (PBC) is the first-line treatment for ovarian cancer (OC) patients, while PARP inhibitors are often used as maintenance in the platinum-sensitive setting. Resistance to both treatments, however, is a significant challenge. Currently, second-line therapy response to platinum is predicted using relapse timing and patient frailty, but this stratification is not sufficiently accurate. PLAT-M8, a DNA methylation-based biomarker, was identified as a blood-based biomarker associated with platinum response at the time of relapse. Our recent validation study including retrospective cohorts (BriTROC-1 and OV04) confirmed that PLAT-M8 predicted clinical outcomes in relapsed OC patients receiving platinum. This biomarker can stratify patients for PBC benefit and could guide second-line chemotherapy decisions. We have shown that the mechanism of epigenetic change in response to platinum is dependent on DNA repair, in particular MLH1 mismatch repair activity, and is associated with active transcription regions in the genome. Lastly, the gold standard for biomarker validation is a prospective clinical study, aiming to predict patient outcome based on the biomarker. We are currently recruiting patients to a prospective study which should provide definitive evidence of whether this biomarker is predictive for patient treatment decisions.



Baoxu Pang
庞宝旭

TITLE / 职务

Principal Investigator and Associate Professor, Department of Cell and Chemical Biology, Leiden University Medical Center, the Netherlands
荷兰莱顿大学医学中心细胞与化学生物学系首席研究员、副教授

BIOGRAPHY / 简介

Dr Baoxu Pang received his Ph.D. cum laude from the Netherlands Cancer Institute (NKI-AvL) in 2013 and completed post-doctoral training at Stanford University. In 2018 he established his independent research group as a Tenured Group Leader in the Department of Cell and Chemical Biology, Leiden University Medical Center, where his laboratory focuses on deciphering the functions of the non-coding genome.

He has received several prestigious honors, including the Antoni van Leeuwenhoek Prize (NKI-AvL) and the Academic Excellence Award from China. To date, Dr Pang has secured € 3.9 million in research funding, including the highly competitive ERC Starting Grant. His recent work has been published in leading journals such as *Nature Genetics*, *Nature Reviews Molecular Cell Biology*, and *Nature Biomedical Engineering*.

庞宝旭博士于2013年在荷兰癌症研究所以优异成绩获得博士学位，并于2014年至2018年在斯坦福大学医学院遗传学系完成博士后研究。2018年起，他在莱顿大学医学中心建立独立课题组，专注于基因组非编码调控区的功能研究，并于2021年获得终身教职，晋升为副教授。庞博士曾获得安东尼·范·列文虎克奖及国家优秀自费留学生奖学金，其实验室目前共获得390万欧元的科研经费支持，包括全球最具竞争力的科研资助ERC Starting Grant。实验室近期研究成果发表于*Nature Genetics*, *Nature Reviews Molecular Cell Biology*, *Nature Biomedical Engineering*等期刊。

Baoxu Pang
庞宝旭

SPEECH TOPIC / 演讲主题

Functional Study of Non-coding Regulatory Elements in the Human Genome
人类基因组中非编码调控元件的功能研究

ABSTRACT / 摘要

Many of these non-coding regions are expected to contain important regulatory sequences that control gene expression. To date, most studies have focused on activators such as enhancers, but regions that repress gene expression³silencers⁴have not been systematically studied. We developed a system that identifies silencer regions in a genome-wide fashion. We found that silencers are widely distributed across the human genome and often function in a tissue specific fashion. These silencers harbor unique, tissue-specific epigenetic signatures and are recognized by different transcription factors. Deletion of silencer regions linked to the drug transporter genes ABCC2 and ABCG2, caused up-regulation of these drug transporters and chemo-resistance. 3D chromosome conformation analysis suggests that silencers act at multiple genes, and at the level of chromosomal domains and long-range interactions. Overall, our study demonstrates that tissue-specific silencing is widespread throughout the human genome and likely contributes significantly to the regulation of gene expression.

Recently, we also reported a method involving libraries of paired single-guide RNAs targeting both ends of an NCRE as a screening system for the Cas9-mediated deletion of thousands of NCREs genome-wide so as to study their functions in distinct biological contexts. By using K562 and 293T cell lines and human embryonic stem cells, we show that NCREs can have redundant functions, and that many ultra-conserved elements have silencer activity and play essential roles in cell growth and in the cellular responses to drugs (notably, the ultra-conserved element PAX6_Tarzan may be critical for heart development, as removing it from human embryonic stem cells led to defects in cardiomyocyte differentiation). The high-throughput screen, which is compatible with single-cell sequencing, may allow for the identification of druggable NCREs.



Yaser Greish
亚瑟·格雷什

TITLE / 职务

Professor of Materials Chemistry, Department of Chemistry, United Arab Emirates University
阿联酋大学化学系材料化学教授

BIOGRAPHY / 简介

Dr Yaser Greish (PI) is a Professor of Materials Chemistry and Associate Chair for Graduate Studies in the Department of Chemistry, United Arab Emirates University (UAEU). He has more than 30 years of experience in Materials Science in general and Materials Chemistry in particular.

Dr Greish obtained his Ph.D. in Materials Science in 2001 from The Pennsylvania State University, United States. He then worked for three years as a post-doctoral scholar on a NIH-funded project that developed novel nanomaterials and nanocomposites for bone-tissue engineering.

His current research focuses on the development of novel nanomaterials for biomedical and environmental applications, drawing on his broad background in Materials Science. He has extensive experience in the synthesis and characterization of nanoparticles and nanofibres for medical uses and water treatment.

To date, Dr Greish has supervised or co-supervised 12 Ph.D. and 20 M.Sc. students and has secured multiple competitive grants from UAEU—including UPAR, Centre-Based, and SURE Plus awards—to support these activities. His application-oriented research, conducted in collaboration with colleagues at UAEU and partner institutions in the UAE and abroad, has resulted in 98 publications, 4 patents, 4 book chapters, and 130 presentations at international conferences.

Yaser Greish
亚瑟·格雷什

亚瑟·格雷什是阿联酋大学化学系材料化学教授，现任研究生教育副主任，拥有超过30年的材料科学和材料化学领域的研究经验。格雷什教授于2001年获得美国宾夕法尼亚州立大学材料科学博士学位。随后三年中，他作为博士后研究员，参与了由美国国立卫生研究院资助的项目，研究内容涉及新型纳米材料与纳米复合材料在骨组织工程中的应用。格雷什教授充分利用其在材料科学方面的专业背景，专注于开发新型纳米材料，特别是该材料在生物医学和环境领域的应用。他在纳米粒子和纳米纤维的合成及表征方面取得了重要进展，这些研究成果已广泛应用于医学和水治理领域。在学术指导方面，格雷什教授已成功指导了12名博士生和20名硕士生，并获得了阿联酋大学的UPAR、研究中心项目资助和SURE Plus等多个研究资助，以推动其相关研究项目的进行。格雷什教授的研究具有很强的实践性，他与阿联酋大学及其他阿联酋高校的同事以及国际学者的合作，取得了显著成果，其中包括发表了98篇学术论文、获得4项专利、撰写4章书籍章节，并在国际学术会议上做了130次报告。

SPEECH TOPIC / 演讲主题

Evaluation of a Novel MOF-Based Biosensor for the Detection of Serotonin
新型金属有机框架（MOF）生物传感器在血清素检测中的应用评估

Yaser Greish
亚瑟·格雷什

ABSTRACT / 摘要

The need for rapid and sensitive detection of serotonin (5-hydroxytryptamine, 5-HT), a critical biomarker for various neurological and metabolic disorders, prompted the development of novel electrochemical sensors based on gold nanoparticle-incorporated zeolitic imidazolate frameworks (ZIF-L@Au and ZIF-8@Au). ZIF-L exhibits a two-dimensional (2D) sheet-like morphology, whereas ZIF-8 features a three-dimensional (3D) polygonal structure. These hybrid nanostructures were synthesized and characterized by SEM, XRD, FTIR, TGA, and BET surface area analyses. Electrochemical measurements using cyclic voltammetry, differential pulse voltammetry, linear sweep voltammetry, and electrochemical impedance spectroscopy were performed to evaluate their sensing performance toward serotonin in phosphate buffer solutions. The ZIF-8@Au-modified electrode exhibited superior sensitivity with a detection limit of 0.107 μM , while the ZIF-L@Au-modified electrode offered enhanced selectivity and a lower onset potential, with a detection limit of 0.142 μM . Both materials demonstrated excellent stability over 1,000 cycles and high selectivity against common interfering species. These results establish ZIF-L@Au and ZIF-8@Au as promising candidates for sensitive, selective, and stable electrochemical sensing of serotonin, potentially enabling their future application in real-time clinical diagnostics.



Kun SUN
孙坤

TITLE / 职务

Principal Investigator, Institute of Cancer Research, Shenzhen Bay Laboratory
深圳湾实验室肿瘤研究所特聘研究员

BIOGRAPHY / 简介

Dr Kun Sun obtained his B.Sc. from the University of Science and Technology of China (USTC) in 2010 and his Ph.D. from The Chinese University of Hong Kong (CUHK) in 2014, after which he completed post-doctoral training at CUHK. In 2019 he joined Shenzhen Bay Laboratory as a full-time Principal Investigator.

He has received funding support from the National Natural Science Foundation of China and the National Key Research and Development Program of China. Dr Sun's research focuses on cancer liquid biopsy. His representative work includes the first cell-free DNA tissue-mapping and tumour-origin prediction technology, which revealed the biological properties and molecular mechanisms of cell-free DNA.

To date, he has filed 17+ international patents, several of which have been successfully translated into commercial products.

孙坤博士，2010年毕业于中国科学技术大学，获得学士学位；2014年毕业于香港中文大学，获得博士学位并随后完成博士后训练；2019年全职加入深圳湾实验室，担任特聘研究员，获得基金委国家重点人才项目、国家重点研发计划等项目支持。孙坤博士的研究方向集中在癌症液体活检领域，其代表性工作包括首创游离DNA组织溯源以及肿瘤组织预测技术、揭示游离DNA的生物学特性与分子机理等；共申请了17项国际专利，部分专利已获得转化落地。

Kun SUN
孙坤

SPEECH TOPIC / 演讲主题

AI-driven cancer liquid biopsy and precision medicine
人工智能驱动癌症液体活检技术

ABSTRACT / 摘要

Cancer liquid biopsy, especially cell-free DNA analysis, has been implemented in many countries around the world and is a cutting-edge research direction for early cancer diagnosis. Cell-free DNA in peripheral blood is mainly produced by the degradation of cells after death. During this process, its fragmentation pattern is directly related to nucleases and contains important information such as its tissue origin and pathological state, therefore can be used as a biomarker for cancer diagnosis. In recent years, the rise of artificial intelligence technology has made it possible to develop high-accuracy and low-cost early cancer diagnosis technologies, which has greatly promoted the transformation and commercialization of liquid biopsy technologies. This lecture summarizes the recent works of the presenter in this field, including the biological characteristics and molecular mechanisms of cell-free DNA, AI-empowered early cancer diagnosis models, as well as explorations on liquid biopsy technology in precision medicine.

GUESTS INTRODUCTIONS

嘉宾简介

CDF 2025

THEMATIC SESSION II
MATERIALS ENGINEERING AND ENERGY
TECHNOLOGY

专题会议二：材料工程与能源技术



Baolian SU
苏宝连

TITLE / 职务

Distinguished Professor, University of Namur, Belgium
比利时那慕尔大学终身教授

BIOGRAPHY / 简介

Recipient of the Friendship Award of the Government of the People's Republic of China, academician of the Royal Academy of Belgium, academician of the European Academy of Sciences, President of the World Association of Mesoporous Materials, Founding President of the Global Association of Overseas Chinese Materials Scholars, Honorary Fellow of the Chinese Chemical Society, Foreign Fellow of the Chemical Industry and Engineering Society of China, Belgian Federal Francqi Chaire, Distinguished Professor of the University of Namur, Belgium, Founding Director of the Laboratory of Inorganic Materials Chemistry, University of Namur, Belgium, and Strategic Scientist, Wuhan University of Technology. His research field is "pore science and engineering and its application in energy conversion, energy storage, catalysis, photocatalysis, photosynthesis, environmental protection, life composite materials and artificial organs".

中华人民共和国政府友谊奖获得者，比利时皇家科学院院士，欧洲科学院院士，世界介观结构材料协会主席，全球海外华人材料学者学会创始主席，中国化学会荣誉会士，中国化工学会外籍会士，比利时联邦法兰奇首席教授，比利时那慕尔大学终身教授，比利时那慕尔大学无机材料化学实验室主任，武汉理工大学战略科学家。研究领域为“孔科学与工程及在能源转化，能量存储，催化，光催化，光合作用，环保，生命复合材料及人造器官等领域的应用”。

Baolian SU
苏宝连

SPEECH TOPIC / 演讲主题

Pore Science and Engineering for Green Energy
创造绿色能源技术新质生产力的孔科学与工程

ABSTRACT / 摘要

Porous materials play a very important role in the human development. The revolution in chemical, petrochemical and environmental protection industries is inseparable from porous materials. The design and synthesis of high-efficiency porous materials is thus crucial to reducing pollution emissions, improving reaction process efficiency, supporting high-quality development of the energy and chemical industries, and achieving iterative upgrades for a sustainable evolution. This report will be divided into three parts: 1) The development history of porous materials, 2) The current development status of porous materials: Porous Materials 2.0, 3) The future of porous materials development: Pore Science and Engineering.



Tao YANG
杨涛

TITLE / 职务

Chairman, National Centre for Sustainable Subsurface Utilization of the Norwegian Continental Shelf; Yungu Professor, Westlake University
挪威大陆架能源资源可持续利用国家中心主席；西湖大学首批云谷教授

BIOGRAPHY / 简介

Dr Tao Yang is Chief Professional and Senior Specialist at Equinor, a global energy major ranked 56th on the *Fortune Global 500*. He is Yungu Professor at Westlake University, an elected member of both the Norwegian Academy of Technological Sciences (NTVA) and the Royal Norwegian Society of Sciences and Letters (DKNVS), in recognition of his outstanding contributions to science and engineering.

With experience on more than 300 international projects, Dr Yang possesses deep interdisciplinary expertise spanning chemical and petroleum engineering, artificial intelligence, advanced data analytics, carbon capture, utilisation and storage (CCUS), as well as hydrogen and bio-energy technologies. He has served in leadership roles for numerous international conferences and professional organisations. Notably, he chairs the Technical Committee of the National Centre for Sustainable Utilisation of Energy Resources on the Norwegian Continental Shelf and co-founded the World CCUS Conference, where he will also act as co-chair for the 2025 edition.

Dr Yang’s innovative work has earned him some of the most prestigious honours in the energy sector. He is a recipient of the NTVA Honorary Award—one of only a few academy members to receive this distinction—and has been honoured with both the EAGE Alfred Wegener Award and the SPE Lester C. Uren Award for Technical Excellence.

Tao YANG
杨涛

杨涛博士现任挪威Equinor能源公司首席科学家。Equinor是全球能源巨头，位列《财富》全球500强企业第56位。杨涛博士还入选了西湖大学首批云谷教授，并且是挪威工程院（NTVA）和挪威皇家科学与文学院（DKNVS）双院士。在职业生涯中，杨涛博士参与了全球300多个项目，积累了丰富的经验，拥有跨学科的深厚专业知识，涵盖石油与化学工程、人工智能、先进数据分析、碳捕集、利用与封存（CCUS）、氢能和生物能源技术等多个领域。他曾在多个国际会议和专业组织中担任过领导职务，特别是他担任挪威大陆架能源资源可持续利用国家中心技术委员会主席，是世界碳捕集、利用与封存大会的共同创立者，还担任了2025年会议的执委会主席。因其对全球能源行业的突出贡献，杨涛博士荣获诸多业内极具声望的荣誉和奖项，包括世界华人首次获得的NTVA荣誉奖、欧洲地质科学家和工程师协会（EAGE）阿尔弗雷德·韦格纳奖，以及国际石油工程师协会（SPE）莱斯特·C·尤伦技术卓越奖。

SPEECH TOPIC / 演讲主题

Next-Generation Bioenergy: A Key Driver for the Future of Energy Transition
下一代生物能源：未来能源转型的关键驱动力

Tao YANG
杨涛

ABSTRACT / 摘要

Next-generation bioenergy is rapidly emerging as a pivotal driver in the global energy transition, offering a scalable, low-carbon alternative to conventional fossil fuels. Leveraging advanced biomass conversion technologies—such as gasification and pyrolysis—this new wave of bioenergy enables the production of high-efficiency, zero-emission fuels including biomethane, bio-methanol, and sustainable aviation fuels. In contrast to traditional bioenergy sources like firewood, crop residues, and ethanol, modern bioenergy systems offer significantly enhanced energy efficiency and environmental performance. Their rise is underpinned by a convergence of macroeconomic and technological trends. Five key factors are accelerating growth: rising carbon credit prices, falling costs of off-grid wind and solar power, decreasing expenses associated with green hydrogen production, surging demand for biofuels and biogas, and increasing financial and policy support across global markets. According to the International Energy Agency, bioenergy use in transportation is projected to grow tenfold between 2015 and 2060, ultimately supplying 30% of transport fuels—surpassing electric vehicles. Landmark BECCS (Bioenergy with Carbon Capture and Storage) projects in the UK and the U.S. highlight the sector’s potential for climate mitigation at scale. Industrial deployment now depends on overcoming infrastructure and supply chain limitations through integrated development across the value chain. Inland regions and Belt and Road Initiative countries, with abundant biomass resources and renewable energy potential, are emerging as key hubs for bioenergy industrialization. Beyond reducing greenhouse gas emissions, next-generation bioenergy aligns closely with strategic national priorities, including carbon neutrality, energy security, and rural revitalization. With ongoing technological advances and evolving business models, bioenergy is poised to become a foundational pillar of the global low-carbon economy.



Carl Boehlert
卡尔·博尔赫特

TITLE / 职务

Professor, Department of Chemical Engineering and Materials Science (ChEMS), College of Engineering, Michigan State University, United States
美国密歇根州立大学工程学院化学工程与材料科学系教授

BIOGRAPHY / 简介

Prof. Carl Boehlert is a Professor of Materials Science at Michigan State University. His research interests include metallurgy; electron microscopy and electron backscatter diffraction (EBSD); metal-matrix composites (MMCs); and titanium alloys and composites.

Prof. Boehlert received his B.S. in Agricultural and Biological Engineering from Cornell University, United States, followed by an M.S. in Materials Science and Engineering from the University of Dayton, Ohio. He continued his research on the physical metallurgy of advanced titanium alloys and their composites at Dayton, earning his Ph.D.

After fellowships and research appointments at Johns Hopkins University and Los Alamos National Laboratory (LANL), he joined the NYS College of Ceramics at Alfred University as an Assistant Professor in September 2001. He moved to Michigan State University in 2005 as an Assistant Professor, was promoted to Associate Professor in 2007, and became a full Professor in 2015.

Prof. Boehlert is a recipient of a National Science Foundation (NSF) CAREER Award and a U.S. Department of Energy (DOE) Presidential Early Career Award for Scientists and Engineers (PECASE).

Carl Boehlert
卡尔·博尔赫特

卡尔·博尔赫特，现任密歇根州立大学工程学院化学工程与材料科学系教授，研究领域包括冶金学、电子显微镜与电子背散射衍射（EBSD）、金属基复合材料（MMCs）以及钛合金及其复合材料。他本科毕业于纽约康奈尔大学，获得农业与生物工程学士学位，后于俄亥俄州代顿大学获得材料科学与工程硕士学位，继而在该校攻读博士学位，深入研究先进钛合金及其复合材料的物理冶金特性。博士毕业后，他曾在约翰斯·霍普金斯大学和洛斯阿拉莫斯国家实验室（LANL）从事研究工作。2001年9月，卡尔·博尔赫特受聘为阿尔弗雷德大学纽约州立陶瓷学院助理教授；2005年，他加入密歇根州立大学任助理教授，2007年升任副教授，2015年晋升为正教授。凭借在科研领域的杰出贡献，他曾荣获美国国家科学基金会（NSF）青年职业奖，并获得了美国能源部（DOE）“青年科学家与工程师总统早期职业奖”。

SPEECH TOPIC / 演讲主题

Characterization of the Microstructure, Tensile, Fatigue, and Creep Behavior of Ti-6Al-4V-1B Alloys Processed via Casting, Casting and Extruding, and Powder Metallurgy Routes
Ti-6Al-4V-1B合金在铸造、铸造-挤压与粉末冶金工艺下的微观结构及力学性能表征

Carl Boehlert
卡尔·博尔赫特

ABSTRACT / 摘要

This work investigated the microstructure, tensile, fatigue, and creep behavior of powder metallurgy processed rolled and extruded Ti-6Al-4V-1B(wt.%). The rolled alloy exhibited a duplex microstructure, and it did not exhibit a strong α -phase texture compared with the extruded alloy, which exhibited a fine equiaxed+ microstructure. The-phase field extrusion followed by cooling resulted in a strong-phase texture in which the basal plane was predominately oriented perpendicular to the extrusion axis. The TiB whiskers were also aligned in the extrusion direction. This strong texturing resulted in tensile-strength anisotropy unlike that for the rolled alloy. The tensile strength, which was evaluated at room-temperature and 455oC, in the transverse orientation was lower than that in the longitudinal orientation, and the tensile strength for the rolled material was intermediate to the two. Debonding was not observed during the tensile tests in the transverse orientation, indicating a strong interface bond exists between the TiB phase and the two-phase (+) matrix. The rolled alloy exhibited greater tensile-creep resistance, which was evaluated at temperatures between 400-475oC, than the extruded alloy. The fatigue conditions included a temperature of 455°C for maximum applied stresses between 300-700 MPa (R=0.1, 5Hz). The extruded alloy exhibited greater fatigue resistance than the rolled alloy, and the ratcheting behavior during fatigue resembled similarities to the creep behavior. Overall, the results will be presented in comparison with as-cast and cast-then-extruded Ti-6Al-4V-1B(wt.%).



Hui Li
李辉

TITLE / 职务

Professor and Vice Dean, Department of Thermal Engineering, Shandong Jianzhu University
山东建筑大学热能工程学院教授、副院长

BIOGRAPHY / 简介

Prof. Hui Li is Professor, Doctoral Supervisor, and Vice Dean of the Department of Thermal Engineering at Shandong Jianzhu University, China. He is listed among the world’s top 2% scientists and has received numerous honours, including the 2025 New Era Youth Pioneer Award and the title of Young Taishan Scholar of Shandong Province.

Aligning with China’s Belt and Road Initiative, Prof. Li has built multi-dimensional collaborations in green-energy research with African partners such as the University of South Africa and the University of Johannesburg. As Principal Investigator, he leads one of China’s inaugural China–Africa Partnership Institute Programmes (one of only ten nationwide), the Intergovernmental International Cooperation on Science and Technology Innovation Key Special Project under the National Key R&D Program of China, and several projects funded by the National Natural Science Foundation of China (NSFC).

李辉教授，现任山东建筑大学热能工程学院副院长、教授、博士生导师，成功入选全球前2%顶尖科学家，荣膺2025年度新时代青年先锋奖。李辉教授聚焦国家“一带一路”倡议，与南非大学、约翰内斯堡大学等非洲高校在绿色能源领域开展多维度合作，并作为负责人主持首批中国-非洲伙伴研究所项目（全国仅10项）、国家重点研发计划“政府间国际科技创新合作”重点专项、国家自然科学基金等国家级课题。

Hui Li
李辉

SPEECH TOPIC / 演讲主题

Highly Efficient Production of Biodiesel from Waste Oil
废油脂高效制备生物柴油研究

ABSTRACT / 摘要

Oil is the "lifeblood" ensuring the healthy development of the national economy. China's energy resource endowment, characterized by "abundant coal, limited oil, and scarce gas," resulted in an oil import dependency rate as high as 72% in 2024. Biodiesel, as a green and renewable "zero-carbon" liquid fuel, boasts advantages such as excellent combustion performance, low pollutant emissions, and strong biodegradability, making it an ideal substitute for fossil diesel. The State Council's White Paper of China Energy Development in the New Era emphasizes the need to prioritize improving biodiesel quality and advancing the industrial development of non-grain bio-liquid fuel technology. Producing biodiesel from waste cooking oil (WCO) not only significantly reduces production costs but also addresses food safety concerns associated with the illegal diversion of "gutter oil" back into the food chain. Except for triglycerides, WCO contains substantial impurities like free fatty acids (FFA). The solid acid-catalyzed conversion of WCO enables the simultaneous esterification (of FFAs) and transesterification (of triglycerides) into biodiesel. This represents the most efficient technical pathway for biodiesel production, holding significant development potential and application prospects. However, challenges such as low efficiency and high energy consumption have become critical bottlenecks hindering its industrial application. This research focuses on developing highly efficient MOF (Metal-Organic Framework) based catalysts. Centered on strategies such as coordinating defect sites within MOFs, in-situ modification, and post-synthetic functionalization, we aim to create a series of highly active and stable catalysts. The goal is to provide technical support for advancing China's biodiesel industrialization process.



Igor Konovalov
伊戈尔·科诺瓦洛夫

TITLE / 职务

Professor of Photovoltaic and Semiconductor Technology, University of Applied Sciences Jena, Germany
德国耶拿应用科学大学光伏与半导体技术教授

BIOGRAPHY / 简介

Prof. Konovalov received his Ph.D. in Physics from Martin Luther University Halle-Wittenberg, Germany. He is currently Professor of Photovoltaics and Semiconductor Technology at the Ernst Abbe University of Applied Sciences Jena, Germany. His research focuses on new physical principles in photovoltaics, in particular on the concept of hot-carrier solar cells. Prof. Konovalov has published more than 50 peer-reviewed papers and serves on the programme committee of the European PV Conference. He is a recipient of the iENA Innovation Award.

科诺瓦洛夫教授于德国哈勒的马丁·路德大学取得物理学博士学位，现任耶拿恩斯特阿贝大学光伏与半导体技术教授。其研究主要聚焦于探索光伏技术中的前沿物理机制，尤其专注于“高能载流子太阳能电池”这一创新概念。迄今为止，科诺瓦洛夫教授已发表五十余篇经同行评审的学术论文，并担任欧洲光伏大会程序委员会委员。此外，他还荣获了德国iENA创新奖，以表彰其卓越的科研成果与创新贡献。

Igor Konovalov

伊戈尔·科诺瓦洛夫

SPEECH TOPIC / 演讲主题

Hot Charge Carriers in Cold Solids for Future High Efficiency Solar Cells
冷态固体中的热载流子：通往高效太阳能电池的新路径

ABSTRACT / 摘要

In order to get closer to the thermodynamic limit of efficiency of solar power conversion, the future solar cells may utilize expansion of hot electron gas, rather than surpassing a single energy barrier by photons. Due to a large mass difference between the atoms of a solid and the electrons, hot electron gas can exist also in cold solid. Experimental observation of electron gas heating under illumination is enabled by measurements of electrical noise in conducting solid. The talk discusses the possibilities to interpret the noise measurements in terms of the thermal noise and the shot noise theory.

GUESTS INTRODUCTIONS

嘉宾简介

THEMATIC SESSION III
ARTIFICIAL INTELLIGENCE AND
INFORMATION COMPUTING

专题会议三：人工智能与信息计算



Simon Yang
杨先一

TITLE / 职务

Professor, University of Guelph, Canada
加拿大圭尔夫大学教授

BIOGRAPHY / 简介

Prof. Simon Yang is a Fellow of the Canadian Academy of Engineering (CAE). He is Professor and Head of the Advanced Robotics & Intelligent Systems (ARIS) Laboratory at the University of Guelph, Canada. Prof. Yang is an internationally recognised expert in intelligent robotics. His research interests include robotics, intelligent systems, control systems, sensors and multi-sensor fusion, wireless sensor networks, intelligent communications, intelligent transportation, intelligent agriculture, and computational neuroscience.

He has published more than 650 academic papers, including over 350 journal articles. Prof. Yang has served as Editor-in-Chief of *Intelligence & Robotics* and other journals, and as Associate Editor of *IEEE Transactions on Cybernetics*, *IEEE Transactions on Artificial Intelligence*, among several others. He has also been involved in organising numerous international conferences.

杨先一教授是加拿大工程院院士，现任加拿大圭尔夫大学高级机器人与智能系统（ARIS）实验室教授及实验室主任。他在智能机器人领域享有国际盛誉，研究方向广泛，涵盖机器人学、智能系统、控制理论、传感器与多传感器融合、无线传感网络、智能通信、智慧交通、智能农业以及计算神经科学等多个前沿领域。杨先一教授目前已发表学术论文逾650篇，其中包括350余篇高水平期刊论文。他曾担任《智能与机器人系统》等期刊的主编，并在《电气电子工程师学会控制论汇刊》《电气电子工程师学会人工智能汇刊》及多本国际期刊担任副主编。此外，他还在众多国际学术会议中担任组织要职，积极推动学术交流与合作。

Simon Yang
杨先一

SPEECH TOPIC / 演讲主题

From Bio-inspired Intelligence to Autonomous Robotic Systems
从仿生智能到自主机器人系统

ABSTRACT / 摘要

Research on biologically inspired intelligence has made significant progress in both understanding the biological systems and developing bionic engineering applications to sensing, information processing, and control for various robotic systems. In this talk, I will start with a very brief introduction to several biological systems and their inspiration for intelligent autonomous robotic systems. After that, I will focus on several examples of our current research on bio-inspired intelligent approaches with applications to diversified autonomous robotic systems, such as real-time motion planning, tracking, and control of mobile, aerial, water surface and underwater robotic systems; and intelligent robotic e-nose systems with applications.



João Gama
若昂·伽马

TITLE / 职务

Professor, Faculty of Economics, University of Porto, Portugal
葡萄牙波尔图大学经济学院教授

BIOGRAPHY / 简介

Prof. João Gama is an Emeritus Professor at the University of Porto, Portugal. He received his Ph.D. in Computer Science from the University of Porto in 2000. He has taught Informatics and data science at the School of Economics for more than 30 years and served as Director of the Master’s in Data Analytics for 12 years.

Prof. Gama is a EurAI Fellow, an IEEE Fellow, and a Fellow of the Asia–Pacific Artificial Intelligence Association (AAIA). He is a member of the board of directors of LIAAD – INESC TEC. His primary scientific contributions are in the field of learning from data streams, for which he has an extensive list of publications.

He is currently Editor-in-Chief of the *International Journal of Data Science and Analytics* (Springer).

若昂·伽马目前担任葡萄牙波尔图大学名誉教授。他于2000年获得波尔图大学计算机科学博士学位，并在该校经济学院执教信息学与数据科学30余年， 还曾担任数据分析硕士项目主任12年。此外， 他还是欧洲人工智能协会会士、电气与电子工程师协会会士、亚太人工智能协会会士，并担任葡萄牙国立科技学院（INESC Tec）下属 LIAAD 研究组的董事会成员。其主要学术贡献集中于数据流学习领域，发表著作颇丰，并担任施普林格（Springer）旗下《国际数据科学与分析》期刊主编。

João Gama
若昂·伽马

SPEECH TOPIC / 演讲主题

AI for Environment Protection
人工智能赋能环境保护

ABSTRACT / 摘要

Environmental crimes, including the discharge of substances into water and soil, as well as the trafficking of waste and hazardous materials, have a profound impact on the climate, human health, and the environment. In this talk, I will present how we can utilise AI in detecting illegal landfills from satellite images and in identifying illicit activities related to waste trafficking.



Pascal Lorenz
帕斯卡尔·洛伦茨

TITLE / 职务

Professor, University of Haute-Alsace, France
法国上阿尔萨斯大学教授

BIOGRAPHY / 简介

Pascal Lorenz (lorenz@ieee.org) received his M.Sc. (1990) and Ph.D. (1994) from the University of Nancy, France. Between 1990 and 1995 he was a research engineer at WorldFIP Europe and Alcatel-Alsthom. He has been Professor at the University of Haute-Alsace, France, since 1995. His research interests include QoS, wireless networks and high-speed networks.

He is author or co-author of three books, three patents and 200 international publications in refereed journals and conference proceedings. He served as Technical Editor for *IEEE Communications Magazine* (2000–2006), and is currently on the editorial boards of *IEEE Network* (since 2015) and *IEEE Transactions on Vehicular Technology* (since 2017).

Professional service (selected)

- Chair, IEEE ComSoc France Section (2014–2020)
- Financial Chair, IEEE France Section (2017–2022)
- Chair, Vertical Issues in Communication Systems TC Cluster (2008–2009)
- Chair, Communications Systems Integration and Modeling TC (2003–2009)
- Chair, Communications Software TC (2008–2010)
- Chair, Information Infrastructure and Networking TC (2016–2017)
- Chair, IEEE/ComSoc Satellite and Space Communications TC (2022–2023)
- Member, IEEE Region 8 Finance Committee (2022–2023)
- Member, IEEE Region 8 Conference Coordination Committee (2023)

He has held numerous conference leadership roles, including Co-Program Chair (*IEEE WCNC 2012*, *IEEE ICC 2004*), Executive Vice-Chair (*IEEE ICC 2017*), TPC Vice-Chair (*IEEE GLOBECOM*

Pascal Lorenz
帕斯卡尔·洛伦茨

2018), and Tutorial Chair (*IEEE VTC 2013 Spring*, *IEEE WCNC 2010*). He has also served as Symposium or Track Chair for multiple editions of *IEEE GLOBECOM*, *IEEE ICC*, *IEEE PIMRC*, and *IEEE WCNC*.

Dr Lorenz has been Co-Guest Editor for special issues of *IEEE Communications Magazine*, *IEEE Network*, *IEEE Wireless Communications*, *Telecommunications Systems*, and *Lecture Notes in Computer Science (LNCS)*. He is Associate Editor of the *International Journal of Communication Systems (IJCS)*, *Security and Communication Networks (SCN)*, *International Journal of Business Data Communications and Networking*, and the *Journal of Network and Computer Applications (JNCA)*.

He is a Senior Member of IEEE, an IARIA Fellow, and has served on many international programme committees. He has organised numerous conferences, chaired technical sessions, and delivered tutorials at major international events. He was an IEEE ComSoc Distinguished Lecturer for 2013–2014.

帕斯卡尔·洛伦茨教授于1990年和1994年分别获得法国南锡大学硕士和博士学位。1990年至1995年，他曾在WorldFIP欧洲和阿尔卡特-阿尔斯通公司担任研究工程师。自1995年起，洛伦茨教授在法国上阿尔萨斯大学担任教授，长期从事服务质量（QoS）、无线网络及高速网络等方向的研究，至今已出版或合著专著3部，拥有3项专利，并在国际权威期刊及会议上发表了200余篇论文。在学术职务方面，洛伦茨教授曾任电气电子工程师学会《通信杂志》编辑委员会技术编辑（2000–2006），自2015年起担任电气电子工程师学会《网络杂志》技术编辑，自2017年起担任电气电子工程师学会《车载技术汇刊》技术编辑。他还曾担任电气电子工程师学会通信学会法国分会主席（2014–2020）、电气电子工程师学会法国分会财务主席（2017–2022），以及通信系统技术委员会集群“垂直议题”组主席（2008–2009）、通信系统集成与建模技术委员会主席（2003–2009）、通信软件技术委员会主席（2008–2010）、信息基础设施与网络技术委员会主席（2016–2017）、电气电子工程师学会/通信学会卫星与空间通信技术委员会主席（2022–2023）、电气电子工程师学会第八区（R8）财务委员会委员（2022–2023）、电气电子工程师学会第八区会议协调委员会委员（2023）。此外，洛伦茨教授曾担任2012电气电子工程师学会无线通信与网络会议和2004国际通信会议的联合程序主席，

Pascal Lorenz
帕斯卡尔·洛伦茨

2017国际通信会议执行副主席，2018全球通信大会技术程序委员会副主席，2016全球通信大会专题讨论会联合主席，2013车载技术会议春季会议及2010无线通信与网络会议教程主席，2012个人、室内和移动无线通信会议和2014无线通信与网络会议分会主席，以及2007-2011全球通信大会、2019全球通信大会、2008-2010国际通信会议、2014和2016国际通信会议专题研讨会联合主席。他还曾多次担任电气电子工程师学会《通信杂志》《网络杂志》《无线通信杂志》《电信系统》及《计算机科学讲义》特刊的联合客座编辑。现任《国际通信系统期刊》(IJCS-Wiley)《安全与通信网络期刊》(SCN-Wiley)《国际商业数据通信与网络期刊》及《网络与计算机应用期刊》(JNCA-Elsevier)的副主编。作为电气电子工程师学会高级会员及国际学术、研究与产业协会(IARIA)会士，洛伦茨教授活跃于多个国际程序委员会，组织并主持了众多国际会议的技术分会，并在多场重要国际会议上开设了讲习班与讲座。2013-2014年间，他还担任电气电子工程师学会通信学会杰出演讲者巡讲计划的讲师。

SPEECH TOPIC / 演讲主题

Architectures of Next Generation Wireless Networks
新一代无线网络架构

ABSTRACT / 摘要

Internet Quality of Service (QoS) mechanisms are expected to enable wide spread use of real time services. New standards and new communication architectures allowing guaranteed QoS services are now developed. We will cover the issues of QoS provisioning in heterogeneous networks, Internet access over 5G networks and discusses most emerging technologies in the area of networks and telecommunications such as IoT, SDN, Edge Computing and MEC networking. We will also present routing, security, baseline architectures of the inter-networking protocols and end-to-end traffic management issues.



Yanlong TAI
邵艳龙

TITLE / 职务

Professor, Key Laboratory of Medical Imaging and Technology System, Shenzhen Institute of Advanced Technology, Chinese Academy of Sciences
医学成像科学与技术重点实验室、中国科学院深圳先进技术研究院研究员

BIOGRAPHY / 简介

Dr Yanlong Tai obtained his Ph.D. through a joint programme between Fudan University, China, and Ohm University, Germany, and subsequently conducted research at the University of California, Davis (UC Davis), Fraunhofer ENAS, and King Abdullah University of Science and Technology (KAUST), Saudi Arabia.

In 2019 he joined the Shenzhen Institute of Advanced Technology (SIAT), Chinese Academy of Sciences as a full-time Professor and Principal Investigator in the State Key Laboratory of Medical Imaging and Technology System. He also heads the SIAT-UAEU International Joint Laboratory of Intelligent Perception and Energy, the Digital Skeleton Enterprise Joint Laboratory, among others. In addition, Dr Tai serves as a council member of the Bio-MEMS Branch and as a member of the Guangdong Biomedical Engineering Rehabilitation Branch.

Dr Tai has focused on flexible sensing electronics and interactive technology for more than ten years, publishing over 60 SCI-indexed papers in *Science Advances*, *Matter*, *Advanced Materials*, and related journals, and holding 19 Chinese and international PCT patents. Several of his results have appeared on journal covers and have been featured by *Science Daily*, *Nature Middle East*, *Asian Research News*, *UAE National News*, and other media outlets.

He has received multiple honours, including the First Prize of the Beijing Science and Technology Progress Award (rank 6/15), the Shenzhen Excellent Paper Award (corresponding author), and recognition in the China-Albania Economic and Trade Conference Highlight Report (rank 1/2).

Yanlong TAI
邵艳龙

His research has been funded by National Key R&D Programmes, Key Platform Projects of the Ministry of Industry and Information Technology, the National Natural Science Foundation of China, international cooperation grants from the Chinese Academy of Sciences, and commissioned projects from hospitals and industry partners.

邵艳龙博士通过中国复旦大学与德国欧姆大学联合培养项目获博士学位，并先后在美国加利福尼亚大学戴维斯分校、德国弗劳恩霍夫电子纳米系统研究所（ENAS）及沙特阿卜杜拉国王科技大学（KAUST）开展科研工作。2019年，他全职加盟中国科学院深圳先进技术研究院，担任医学成像与技术系统全国重点实验室项目负责人，并牵头建设了多个国际合作平台，包括中科院深圳先进院-阿联酋大学（SIAT-UAEU）智能感知与能量联合实验室、数字骨科企业联合实验室等。此外，他还担任中国生物微系统学会MEMS分会理事、广东省生物医学工程康复分会委员等职务。

邵艳龙博士深耕柔性敏感电子与人机交互技术研究逾十年，已在《科学进展》《Matter》《先进材料》等国际顶尖期刊发表SCI论文60余篇，拥有19项中外PCT发明专利，多项成果作为期刊封面发表，并被《每日科学》《Nature Middle East》《Asian Research News》《阿联酋国家新闻》等权威媒体专题报道。他荣获北京市科技进步一等奖（总15名中列第6位）、深圳市优秀论文奖（通讯作者），并作为第一作者成果入选中阿经贸会议报告集锦。其研究工作获得国家重点研发计划、工业和信息化部重点平台项目、国家自然科学基金面上项目、中国科学院国际合作专项及多项医院与企业委托课题资助，持续推动该领域前沿技术的发展与转化。

Yanlong TAI
邵艳龙

SPEECH TOPIC / 演讲主题

Flexible Biointerfacial Sensor for Human-machine Interactive Application
面向人机交互的柔性生物界面传感器

ABSTRACT / 摘要

Artificial intelligent powered flexible tactile sensors have drawn more attention recently because they are the important integrated hardware powered by human intelligence (HI) and machine intelligence (MI) for human-machine interaction. This technology has not only become an important link between human, machine and object, but also an important driving force for the further integration of the physical world, the digital world and the organism. Compared with the current mainstream tactile capture technologies, like the depth-of-field camera with the limitation of the surrounding environment, silicon-based inertial devices with the mismatched physical modules between their rigid morphology and the soft biological tissues in the microenvironment, etc., flexible tactile sensing technology presents obvious advantages. It can achieve the accurate transmission and recognition of mechanical motion behaviors in a three-dimensional (3D) space with the physical parameters of location, speed, angle, gesture, etc., providing a comprehensive, immersive integration experience. Therefore, this report aims to present our process of flexible biointerfacial sensing technology from material to device, structure to theory, system to application, conclude the main bottlenecks, and aim to provide a guidance and suggestion for further progress in this field.



Tomotaka
Takahashi
高桥智隆

TITLE / 职务

Founder and CEO, Robo Garage, Japan; Visiting Professor, Osaka Electro-Communication University, Japan
日本Robo Garage创始人兼首席执行官；大阪电气通信大学客座教授

BIOGRAPHY / 简介

Tomotaka Takahashi is the Founder and CEO of Robo Garage, Visiting Professor at Osaka Electro-Communication University, and former Research Associate Professor at The University of Tokyo. He researches, designs, and manufactures humanoid-robot prototypes entirely from scratch.

His creations include the robot astronaut “Kirobo,” the robot smartphone “RoBoHoN,” the build-it-yourself magazine kit “Robi,” Panasonic’s TV commercial robot “EVOLTA,” and the RoboCup champion robot “VisiON.”

Awards and Honours

- *TIME* magazine “Coolest Inventions 2004”
- *Popular Science* “33 Persons Changing the Future”
- Five Guinness World Records for *Evolta* and *Kirobo*
- RoboCup World Champion, 2004 – 2008

高桥智隆教授是日本 RoboGarage 创始人兼首席执行官，同时担任大阪电气通信大学客座教授，此前还曾是东京大学的研究副教授。他长期致力于类人机器人原型的构思、设计、发明与制造工作，始终秉持“从零开始”的创造精神。其代表作包括太空机器人“Kirobo”、机器人智能手机“RoBoHoN”、机器人杂志套件“Robi”、松下广告角色“EVOLTA”以及RoboCup冠军机器人“VisiON”等。高桥智隆教授的成就广受认可，曾入选美国《时代》杂志“2004年度最酷发明”，被《大众科学》杂志评为“改变未来的33人”之一。他以Evolta与Kirobo两项发明打破五项吉尼斯世界纪录，并在2004年至2008年连续五年问鼎RoboCup世界冠军。

Tomotaka
Takahashi
高桥智隆

SPEECH TOPIC / 演讲主题

The Creation of a New Robot Era
新机器人时代的诞生

ABSTRACT / 摘要

Generative AI continues to develop, and now attention is shifting to Embodied AI. Embodied AI is expected to perform physical tasks in the real world, and in this respect, Asian companies and researchers who have been working on robot development will have a major advantage. And when robots start to play an active role in the real world, the next challenge will be to design them considering their relationship with humans. In this lecture, I would like to demonstrate a communication robot and introduce how Embodied AI will evolve in the future.

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