



International Conference on
Electrochemical Energy Science and Technology
EEST2015

August 16-22, 2015; Vancouver, BC, Canada

Conference website: <http://www.iaoees.org/events/EEST2015/>; E-mail: eest2015@iaoees.org

Organizer

International Academy of Electrochemical Energy Science (IAOEEES)



Co-organizer

Tianjin University, China

Scope

The International Conference on Electrochemical Energy Science and Technology (EEST2015) is the second conference organized by the International Academy of Electrochemical Energy Science (IAOEEES). The meeting consists of plenary talks, invited keynote speeches and poster presentations focusing on electrochemical energy research, development and applications. This conference will be the venue for energy storage and conversion technologies employing electrochemical methods, such as fuel cells, batteries, supercapacitors, electrolysis, and so on. The objective of this conference is to stimulate fundamental and applied research on electrochemical energy. It allows researchers, students and engineers gathering for fruitful discussions, and presentation of new results within the conference topics.

Conference Topics

Topics including but not limited to:

Fuel Cells: PEMFC, DMFC, DEFC, SOFC, etc..

Batteries & supercapacitors: Li-ion, Li-S, Na-S, Na-ion, metal-air, advanced lead-acid, flow batteries, supercapacitors.

Electrolysis & hydrogen: Electrolyzers, photo-electrochemical cells, CO₂ electroreduction, advanced chloro-alkaline.

Electrochemistry energy fundamentals: Electrochemical theories, electrocatalysis, electroanalysis, electropolymerization, electrosynthesis.

Advanced electrochemical materials (nanomaterials):

Electrode/Electrolyte materials synthesis, characterization and performance validation as well as fundamental understanding

Electrochemical energy industry: Electrochemical energy production related materials/devices/systems, their engineering, designs, manufacture, and fabrication, as well as their related theories processes and applications.

Conference Venue

The conference will be held at the University of British Columbia, located in beautiful Vancouver, BC, Canada. The Greater Vancouver area hosts a world-class research cluster for electrochemical energy research and development.

Abstract Submission

Abstracts describing recent and novel work in fields related to the conference scope are invited for submission. English is the official language of the conference.

Important Dates

May 15	Deadline for abstract submission
May 31	Notification of abstract acceptance
June 15	Early bird registration
July 31	Final registration



Conference Chair

WILKINSON, David P. University of British Columbia, Canada

Conference Co-Chairs

SUN, Andy (Xueliang) University of Western Ontario, Canada
HU, Wenbin Tianjin University, China
QIAO, Jinli Donghua University, China
ZELENAY, Piotr Los Alamos National laboratory, USA
CHEN, Zhongwei University of Waterloo, Canada
LAMY, Claude CNRS University of Montpellier 2, France
CHEN, Jun Nankai University, China
LIU, Hua Kun University of Wollongong, Australia
MATSUE, Tomokazu Tohoku University, Japan
CHENG, Hui-Ming Institute of Metal Research, Chinese Academy of Sciences, China
Queen's University, Canada
PEPPLEY, Brant A.
XIA, Dingguo Peking University, China
MARIC, Radenka University of Connecticut, USA
POLLET, Bruno G. University of The Western Cape, South Africa
ZHANG, JiuJun University of British Columbia, Canada

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FENG, Shouhua Jinlin University, China

DU, Xiwen Tianjin University

GHOSH, Dave XRD Energytech Solutions Inc., Canada

GU, Lin Chinese Academy of Sciences, China

GUO, Jinghua Lawrence Berkely National Laboratory, United States



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GUO, Yu-Guo	Institute of Chemistry, Chinese Academy of Sciences, China	MA, Zifeng	Shanghai Jiao Tong University, China
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HONG, Feng	Donghua University, China	MARIC, Redenka	University of Connecticut, United States
HOSTER, Harry	Technische Universität München, Germany	MARQUES, Aldalea	Federal University of Maranhão, Brazil
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HU, Yongsheng	Chinese Academy of Sciences, China	MATSUE, Tomokazu	Tohoku University, Japan
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HWANG, Bing-Joe	National Taiwan University of Science and Technology	MORITA, Masayuki	Yamaguchi University, Japan
ISHIHARA, Tatsumi	Kyushu University, Japan	MU, Shichun	Wuhan University of Technology, China
JIANG, Sanping	Curtin University, Australia	NGUYEN, Trung Van	University of Kansas, United States
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JONES, Deborah J.	Montpellier University, France	PAN, Mu	Wuhan University of Technology, China
JUNG, Joey	Kemetco Research, Canada	PEPPLEY, Brant A.	Queen's University, Canada
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KUANG, Dai-Bin	Sun Yat-sen University, China	QI, Zhigang	Wuhan Troowin Power System Technology Co., China
LAMY, Claude	CNRS Institute of Chemistry, France	QIAO, Jinli	Donghua University, China
LAVACCHI, Alessandro	The Italian National Research Council (ICCOM-CNR)	QIAO, Shizhang	University of Adelaide, Australia
LI, Guang	Donghua University, China	QIU, Jieshan	Dalian University of Technology, China
LI, Jian	Huazhong University of Science and Technology, China	SAVADOGO, Oumarou	Polytechnique Montréal, Canada
LI, Jun	Kansas State University, United State	SHAO, Minhua	Hongkong University of Science & Technology, China
LI, Qingyu	Guangxi Normal University, China	SHEN, Pei Kang	Sun Yat-sen University, China
LI, Qingfeng	Technical University of Denmark, Denmark	SHI, Siqi	Shanghai University, China
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LI, Xianguo	University of Waterloo, Canada	STAMENKOVIC, Vojislav	Argonne National Laboratory, United States
LI, Xifei	Tianjin Normal University, China	SUI, Pang-Chieh	University of Victoria, Canada
LI, Liang	Soochow University, China	SUN, Xueliang	University of Western Ontario, Canada
LIAO, Shijun	South China University of Technology, China	SUN, Shi-Gang	Xiamen University, China
LIAW, Bor yann	University of Hawaii, United States	SUN, Shu hui	Institut National de la Recherche Scientifique (INRS), Canada
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LIU, Hua Kun	University of Wollongong, Australia	WAN, Lijun	Chinese Academy of Sciences, China
LIU, Yuyu	Tohoku University, Japan	WANG, Hai Jiang	National Research Council Canada
LIU, Ru-Shi	National Taiwan University, Taiwan	WANG, Shuangyin	Hunan University, China
LIU, Zhaoping	Chinese Academy of Sciences, China	WANG, Chaoyang	Pennsylvania State University, United States
LIU, Gang	Chinese Academy of Sciences, China	WANG, Yixuan	Albany State University, United States
LIU, Meilin	Georgia Institute of Technology, United States	WANG, Deli	Huazhong University of Science & Technology, China
LU, Juntao	Wuhan University, China	WANG, Weichao	Nankai University, China
		WANG, Shun	Wenzhou University, China



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WEI, Zidong	Chongqing University, China	YU, Aiping	University of Waterloo, Canada
WIECKOWSKI, Andrzej	University of Illinois at Urbana-Champaign (UIUC), United States	YU, Tzzy-Lung	Yuan Ze University, Taiwan
WILKINSON, David	University of British Columbia, Canada	YU, Hongmei	Chinese Academy of Sciences
WU, Yuping	Fudan University, China	YU, Yan	University of Science and Technology China
WU, Gang	University of Buffalo, United States	YUAN, Xianxia	Shanghai Jiao Tong University, China
WU, Hui	Tsinghua University, China	ZELENAY, Piotr	Los Alamos National Laboratory, United States
XIA, Yongyao	Fudan University, China	ZHANG, JiuJun	University of British Columbia, Canada
XIA, Dingguo	Peking University, China	ZHANG, Lei	National Research Council Canada
XIANG, Yan	Beihang University, China	ZHANG, Tong	Tongji University, China
XIAO, Xingcheng	General Motors Global Research and Development Center	ZHANG, Huamin	Chinese Academy of Sciences, China
XING, Wei	Chinese Academy of Sciences, China	ZHANG, Feng-Yuan	University of Tennessee, United States
XIONG, Yujie	University of Science and Technology of China, China	ZHANG, Tierui	Chinese academy of sciences
YAN, Yushan	University of Delaware, United States	ZHANG, Yuanjian	Southeast University, China
YANG, Ruizhi	SuZhou University, China	ZHAO, Yixin	Shanghai Jiaotong University, China
YANG, Hui	Chinese Academy of Sciences, China	ZHOU, Biao	University of Windsor, Canada
YANG, Lin	Henan Normal University, China	ZHOU, Xiao-Dong	University of South Carolina, United States
YANG, Gary	UniEnergy Technologies, United States	ZHOU, Su	Tongji University, China
YANG, Yong	Xiamen University, China	ZHU, Hong	Beijing University of Chemical Technology, China
YANG, Shuting	Henan Normal University, China	ZHUANG, Lin	Wuhan University, China
YANG, Shubin	Beihang University, China		

Plenary Speakers:



Dr. David P. Wilkinson is a Professor at the Department of Chemical and Biological Engineering at the University of British Columbia, and Canada Research Chair (Tier 1). He is a fellow of several organizations including the Engineering Institute of Canada, the Canadian Academy of Engineering, and the Chemical Institute of Canada. Dr. Wilkinson received his B.A.Sc. Degree in Chemical Engineering from the University of British Columbia (UBC) in 1978 and his Ph.D. degree in Chemistry from the University of Ottawa in 1987, where his graduate work was done with Professor Brian Conway. He has over 20 years of industrial experience in the areas of fuel cells and advanced lithium batteries. He also



maintained a joint appointment with the National Research Council Institute for Fuel Cell Innovation for several years where he was a Principal Research Officer and a senior advisor. In addition to being a Professor at UBC, Dr. Wilkinson was the Director of the UBC Clean Energy Research Center (CERC) for four years. Prior to his university appointment Dr. Wilkinson was the Director, and then Vice President of Research at Ballard Power Systems Inc., involved with the research, development and application of fuel cell technology. Prior to joining Ballard in 1990 he was the group leader for chemistry and electrochemistry at Moli Energy and part of the team that developed the world's first commercial rechargeable lithium AA battery. Dr. Wilkinson has received a number of awards for his work including the R.A. McLachlan Award, the highest award for professional engineering in British Columbia, the Electrochemical Society Battery Division Technology Award, a Lifetime Achievement Award from the Canadian Hydrogen and Fuel Cells Association, and the Grove Medal award for contributions to fuel cell technology. Dr. Wilkinson's main research interests are in electrochemical and photochemical power devices and processes to create clean and sustainable energy. He has over 80 patents and more than 150 publications in peer-reviewed journals covering innovative research in these fields. He is a Board Committee Steering member of the International Academy of Electrochemical Energy Science (IAOEES). Dr. Wilkinson has been ranked as the World Highly Cited Researchers in the period between 2004 and 2014, and also listed as one of the "3000 World's Most Influential Scientific Minds" by Thomson Reuters in 2014.



Dr. Mark Verbrugge is the Director of GM's Chemical and Materials Systems Laboratory, which maintains global research programs—enabled by the disciplines of chemistry, physics, and materials science—and targets the advanced development of structural subsystems, energy storage and conversion devices, and various technologies associated with fuels, lubricants, and emissions. Dr. Verbrugge is a Board Member of the United States Automotive Materials Partnership LLC and the United States Advanced Battery Consortium LLC. He has received a number of GM internal awards as well as external awards including the Norman Hackerman Young Author Award and the Energy Technology Award from the Electrochemical Society, and the Lifetime Achievement Award from the United States Council for Automotive Research. Mark is a Fellow of the Electrochemical Society and a member of the National Academy of Engineering.



Dr. Lijun Wan is a Research Professor of the Institute of Chemistry of Chinese Academy of Sciences (CAS). Dr. Wan obtained his B.Sc. degree in 1992 from Dalian University of Science and Technology. In 1996, he received his PhD degree in Northeast University of Japan. After that, He worked as the researcher of Japan Science and Technology Agency, the associated professor and visiting professor of Northeast University and Hokkaido University of Japan, respectively. In 1998, Dr. Wan returned to the Institute of Chemistry of CAS as the "Hundred Talents Project" of CAS. From 2004 to 2012, he served as the Director of Institute of Chemistry of CAS. In Nov. 2012, he was elected as the Alternate member of the eighteenth CPC Central Committee. In Nov. 2009, he was elected as the Academician of Chinese Academy of Science. In Oct. 2010, he was elected as the academician of TWAS. Dr. Wan currently serves as the Director of the Center of Molecular Science of CAS, Director of the Key Laboratory of nano-structure and nano-technology of CAS, and Director of State Key Laboratory of Beijing Molecular Science. Dr. Wan has long engaged in STM, electrochemistry and surface science cross-disciplinary research. He combined the experiment, instrumental transformation and theoretical research and developed the research on electrochemical reaction, molecular self-assembly and regulation. Prof. Wan proposed the regulation of surfacial molecule absorption and assembly based on different interactions, and applied them on the research of surfacial nano-patterns, molecular self-assembly

structure transformation and molecular/atomic migration. Meanwhile, Prof. Wan explored the cross-disciplinary research area of electro-chemistry and nano-science, and dedicated to the application research of nano-materials in energy and environmental protection. Dr. Wan has published more than 300 research papers in journals like *Acc. Chem. Res.*, *PNAS*, *Angew. Chem. Int. Ed.*, *JACS*, etc. as well as a monograph of "Electrochemical scanning tunneling microscopy and application". He was awarded the Outstanding Youth Scholar Funding of NSFC and served as the editor board member of *Acc. Chem. Res.*, *JACS*, *Adv. Mater.*, *Chem. Mater.*, *Chem. Commun.*, *PCP* and etc. He was awarded the TWAS Prize in Chemistry, the 2nd Prize of National Natural Science Award, Beijing 1st Prize of Science and Technology, 1st Prize of Science and Technology of Chinese Analysis Association and CCS-BASF Youth Innovation Award and etc. He was also awarded the Labor Medal of the central state organs as well as National Advanced Worker. He was elected as the Fellow of RSC, vice chairman of CCS, Director of CES, representatives of Pacific Rim International Chemical Congress and organizing committee of SPM series of international conferences. He is elected as Vice-President of Chinese Chemical Society and President of Chinese Society of Electrochemistry. He is a Board Committee Steering member of the International Academy of Electrochemical Energy Science (IAOEES). Dr. Wan has been ranked as the World Highly Cited Researchers in the period between 2004 and 2014, and also listed as one of the "3000 World's Most Influential Scientific Minds" by Thomson Reuters in 2014.



Dr. Steven Holdcroft is a Professor of Chemistry and Departmental Chair at Simon Fraser University (SFU). He is known for his contributions to the design of π -conjugated and ionic polymeric materials and their application to organic electronics and fuel cell technology. He is author/co-author of more than 200 peer-reviewed articles and several book chapters and patents. He has served on numerous research advisory boards throughout North America, Europe and Asia, and is a member of the Board of Directors of the Canadian Hydrogen and Fuel Cells Association. He sits on the editorial advisory boards of several, international scientific journals and national and international grant selection committees. He is the Technical Program Chair and Congress Vice-Chair of *Pacificchem 2015* and Director of CaRPE-FC, a national network for Catalysis Research for Polymer Electrolyte Fuel Cells. For services to the community was awarded the Macromolecular Science and Engineering Division Award of the Chemical Institute of Canada (CIC) and is an elected Fellow of the CIC.



Dr. Jean-Pol Dodelet got his Ph.D. in Physical-Chemistry in 1969 from “L’Université Catholique de Louvain”, Belgium. The same year, he left for Canada where he was Post-doctoral Fellow (from 1969 to 1971), then Research Associate (from 1971 to 1976) in Radiation Chemistry at “The University of Alberta”, Alberta, Canada. In 1976, he became Professor of Physical-Chemistry at “L’Université du Québec à Trois Rivières” in Québec, Canada, where he worked until 1981 on the photoconducting properties of molecular photoconductors. In 1981 he became Professor of Physical-Chemistry at INRS, which stands for “Institut National de la Recherche Scientifique”, in Québec, Canada, where he is still working presently. At INRS, he got interested in electrocatalysis, especially in non-noble electrocatalysts for the reduction of oxygen in PEM fuel cells, a research topic that he has now pursued since 1990. Dr. Dodelet has published approximately 250 refereed papers in books and scientific journals, including *Science* and *Nature Communications*. These publications have earned him to date approximately 7500 citations. He is also listed as co-inventor on 10 patents in the area of carbon nanotubes and electrocatalysis. In the last several years, Dr. Dodelet collaborated with General Motors in the frame of an NSERC Industrial Research Chair in electrocatalysis,



sponsored by General Motors of Canada. Now Prof. Dodelet is the steering board committee member of the International Academy of Electrochemical Energy Science (IAOEES).



Dr. Linda Nazar is a Professor in the Department of Chemistry at University of Waterloo, a Fellow of the Royal Society of Chemistry, and a Holder of a Tier 1 Canada Research Chair in Solid State Materials since 2004. Linda has been recognized as a world leader in inorganic nano-material research, particularly for electrochemical energy technologies such as Lithium batteries, fuel cells and solar cells for the past 15 years. She has developed a new way for solid state structures to assemble themselves so that they can be designed to serve a particular purpose. She has published over 160 papers, review articles and patents in the field which were cited over 12,000 times. Dr. Nazar has been ranked as the World Highly Cited Researchers in the period between 2004 and 2014, and also listed as one of the “3000 World's Most Influential Scientific Minds” by Thomson Reuters in 2014.



Dr. Subhas Chalasani is an esteemed member of the Research and Development team at East Penn, the world's largest battery manufacturing company. As the company continues to explore new advancement in lead-acid batteries, like the UltraBattery[®], and its integration with other battery technologies, Dr. Chalasani brings 30 years of R&D experience in both lead-acid and lithium-ion technology to the program. Dr. Chalasani has successfully led other prominent battery development programs at companies including Exide Industries Ltd., Boeing, General Motors, and AT&T Bell Labs. A Ph.D. in Electrochemistry along many patents and publications in battery and battery management designs support his well-respected career and highly valued work.



convert CO₂ to useful products. Dr. Birss is also engaged in the development of protective coatings and other novel strategies to combat the corrosion of metals, novel electrochemical biosensors, and a range of structurally ordered nanomaterials for a variety of useful applications.

Dr. Viola Birss is a Professor of Chemistry and has been a Tier I Canada Research Chair in Fuel Cells and Related Energy Systems at the University of Calgary since 2004. Dr. Birss was one of the founders and then leader of both the Western Canada Fuel Cell Initiative and the pan-Canadian Solid Oxide Fuel Cells Canada (SOFC) organization, and, most recently, the Scientific Co-Director of the SOFC NSERC Strategic Research Network. She is also now the Director of CAESR-Tech (Calgary Advanced Energy Storage and Conversion Research Technologies group) at the University of Calgary. Dr. Birss has been the recipient of numerous prestigious scientific awards, is a Fellow of the Royal Society of Canada as well as of the Canadian Society for Chemistry and the Electrochemical Society, and is the author of over 200 refereed scientific publications. Her research has been focused on better understanding fuel cell reaction mechanisms, as well as on improving the performance and lifetime of both low temperature PEM fuel cells and high temperature SOFCs through the optimization of electrode properties. This work has included the development of sulphur and coke tolerant SOFC anodes, highly active anodes for the catalysis of methanol oxidation, and mesoporous carbon support materials for use in PEM fuel cell cathodes. More recently, she has also been focussed on the development of reversible and symmetrical solid oxide electrolysis cells, serving to split water and