Pre-Program of ITICAT 2019: Campus and Lab Tour

Aalto University, Finland.

Wednesday, August 14 2019	
Meeting point	**Aalto University Metro Station, Gate A (inside or outside depending on the weather)** **Address: Otaniementie 12, 02150 Espoo.**
Meeting time	**14:00 (2:00 pm local time), August 14**

Activity	Schedule	Address
Visit to labs in Micronova	10 min walk to Micronova building + 30 min visit in Micronova building + 10 min walk to Nanotalo building	Tietotie 3, 02150 Espoo, Finland
Visit to labs of NEW Energy technologies Group at Nanotalo	20 min	Puumiehenkuja 2, 02150, Espoo, Finland
Visit to Harald Herlin Learning center	10 min walk to Harald Herlin learning center + 15 min visit at Harald Herlin Learning center	Otaniementie 9, 02150 Espoo, Finland
Visit to Chemistry Engineering Department	5 min walk to Chemical Engineering Department + 20 min visit at Industrial Chemistry Lab	Kemistintie 1, 02150 Espoo, Finland
Walk in the campus area	30 min walk in the Aalto University campus area (Dipoli, other buildings in the campus area)	Otakaari 24, 02150 Espoo, Finland

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Program of ITICAT 2019

Dipoli, Aalto University, Finland.

Thursday, August 15 2019		
9:30-12:00	**Registration**	*Dipoli, in front of Lumituuli*
10:00-12:00	**Round Table discussion chaired by Professors Peter Lund on a topic "Solid state ionics, solid oxide fuel cells and solid state batteries". Two topical presentations will be given by Yulong Ding and Mojie Cheng. Attendance only by invitation.**	*Nanotalo*
Thursday, August 15 2019		
11:30-13:00	**Lunch (For August 15 & 16, no ticket is needed, present your badge.)**	*Sief*
13:30-14:00	Chair for the Opening Ceremony: Yongdan Li, Johannes Schwank Welcome Ceremony Chairs for Plenary: Kristina Edström, Hiromi Yamashita	
14:00-14:50	**PL1: Photocatalytic enhancement of thermal catalytic reactions pa** Johannes W. Schwank, University of Michigan Honored by: Peter Lund	
14:50-15:40	**PL2: Oxygen surface exchange kinetics of mixed ionic-electronic conducting oxides** Henny J. M. Bouwmeester, University of Twente Honored by: Yongdan Li	
15:40-16:10	**Coffee break**	*Sief*
Opening Keynotes		*Lumituuli*
Chairs	Justin Hargreeves, Fengshou Xiao	
16:10-16:50	**K1: Layer-Engineered Functional Inorganic-Organic Materials and Interfaces through ALD/MLD** Maarit Karppinen, Aalto University	
16:50-17:30	**K2:Interfaces in batteries, a hot topic for the long-term large-scale research initiative in Europe** Kristina Edström, Uppsala University	
17:50	Transportation to workshop reception (one-way bus)	*Meet in front of Dipoli*
18:30-20:30	**Workshop reception**	*Hanasaari Finnish-Swedish Cultural Center*, Hanasaarenranta 5, FI-02100 Espoo

Friday, August 16

1 Catalysis and ion transfer in photo-stimulated reactions	*Lumituuli*
Chairs	Maarit Karppinen, Fei Wei
8:30-9:10	**K3: Design of Plasmonic Catalysts for Efficient H_2 Production from Hydrogen Carrier Molecules** Hiromi Yamashita, Osaka University
9:10-9:30	**IO1: Anti-photocorrosion 2-D layer over CdS for hydrogen generation** Gongxuan Lu, Lanzhou Institute of Chemical Physics, CAS
9:30-9:50	**IO2: Particulate photocatalysts and their reaction systems for large-scale solar hydrogen production by water splitting** Takashi Hisatomi, Shinshu University
9:50-10:10	O3: Tunable Covalent Triazine-Based Frameworks (CTF-0) for Visible-Light-Driven Hydrogen and Oxygen Generation from Water Splitting Dan Kong, Aalto University

2 Catalysis and interfacial steps in batteries	*Palaver*
Chairs	Tanja Kallio, Zhen Zhao
8:30-8:50	**IO4: Metal-Organic Frameworks/Gels for Oxygen Electrocatalysis** Biaohua Chen, Beijing University of Technology
8:50-9:10	O5: Solid electrochemical energy storage for aqueous redox flow batteries via molecular wiring Pekka Peljo, Aalto University
9:10-9:50	**K4: Li^+ transfer through the SiC/Si and Si_3N_4/Si layer to inhibit the Chemical Formation Reaction of Li_2SiF_6 for Stable Si-based Anode** Fei Wei, Tsinghua University
9:50-10:10	**IO29: Platinum electrocatalysts with ultra-low metal loadings for promoting hydrogen evolution reaction** Tanja Kallio, Aalto University

10:10-10:40	**Coffee break** *Sief*

5 Catalysis with ion transfer in other energy and chemical processes	*Lumituuli*
Chairs	Maarit Karppinen, Fei Wei
10:40-11:20	**K5: Challenge to overcome carbon corrosion in supercapacitors** Hirotomo Nishihara, Tohoku University

1 Catalysis and ion transfer in photo-stimulated reactions	*Palaver*
Chairs	Tanja Kallio, Zhen Zhao
10:40-11:00	**IO7: Design and Synthesis of TiO_2-based Photocatalysts for CO_2 Reduction with H_2O** Zhen Zhao, Shenyang Normal University
11:00-11:20	O8: Amorphous metal oxides as catalysts for oxygen evolution reaction Cuijuan Zhang, Tianjin University

11:25-12:15 Yongdan Li	**PL3: Development of Solid Oxide Fuel Cell Systems for Utilization of Ammonia as Energy Carrier** *Lumituuli* Koichi Eguchi, Kyoto University Honored by: Hiromi Yamashita
12:15-13:15	**Lunch and poster presentations** *Sief and Capitolium*
13:15-14:05 Yongdan Li	**PL4: Mixed Protonic-Electronic Membrane Reactors; Converting Hydrocarbon Resources and CO_2 to Fuels** Eric D. Wachsman, University of Maryland Honored by: Johannes Schwank

4 Coupling of catalysis and membrane processes	*Lumituuli*
Chairs	Takashi Hisatomi, Biaohua Chen
14:10-14:30	O9: Coupling of catalytic reactions in mixed ionic-electronic conducting membrane reactor Heqing Jiang, Qingdao Institute of Bioenergy and Bioprocess Technology, CAS
14:30-15:10	**K6: Coupling Catalysis and Membrane** Sibudjing Kawi, National University of Singapore

5 Catalysis with ion transfer in other energy and chemical processes	*Palaver*
Chairs	Kazuki Nozawa, Bin Yang
14:10-14:25	O10: Enhanced Performance of Pd Catalysts for Selective Hydrogenation of Acetylene by Modifying the Subsurface Structure Yueqiang Cao, East China University of Science and Technology
14:25-14:40	O11: Numerical Assessment of Interfacial Heat Transfer Profile in Contacting Materials: A 3-Mode Perspective Paul Nwosu, Jiangsu University
14:40-14:55	O12: Isobutane Alkylation Kinetics Catalyzed by Sulfuric Acid Based on Carbonium Ion Mechanism Piao Cao, East China University of Science and Technology
14:55-15:10	O13: Light-to-electricity conversion & stability enhancement by charge transfer catalysis at metal chalcogenide film electrode/electrolyte interface Hikmat S. Hilal, An-Najah National University

15:10-15:40	**Coffee break**	*Sief*

2 Catalysis and ion transfer in fuel cells	*Lumituuli*
Chairs	Mojie Cheng, Muhammad Imran Asghar
15:40-16:20	**K7: Electro-Catalysis at the atomic scale** Jan Rossemeisl, University of Copenhagen
16:20-16:40	**IO14: Molecular level modelling of electrochemical reactions** Kari Laasonen, Aalto University
16:40-17:00	**IO15: Perovskite anodes for solid oxide fuel cells fed with CH_4** Yicheng Zhao, Tianjin University

5 Catalysis with ion transfer in other energy and chemical processes	*Palaver*
Chairs	Hirotomo Nishihara, Cuijuan Zhang
15:40-15:55	O16: The nickel zeolite catalyst for hydrocracking of algal oil – the impact of zeolite's framework on catalytic activity Karolina A. Chalupka, Lodz University of Technology
15:55-16:10	O17: Hydrodeoxygenation of Dibenzofuran over Pt(111) Surface: A DFT Study Xingbao Wang, Taiyuan University of Technology
16:10-16:25	O18: Role of H Diffusion on the Reduction Behavior of VOx/CeO_2 Catalyst Hongxia Fan, Taiyuan University of Technology
16:25-17:05	**K8: A Carbon Neutral Approach to Long Duration Energy Storage through Manipulated Interfaces for Enhanced Carbon Dioxide Electrolysis** John P. Lemmon, China Energy National Institute of Clean and-Low-Carbon Energy (NICE)

17:00-18:00	**Poster presentations**	*Capitolium*
19:20	Transportation to Banquet (one-way bus)	*Meet in front of Dipoli*
20:00-22:00	**Banquet**	*Restaurant Sipuli*, Kanavaranta 7, 00160 Helsinki

Saturday, August 17 2019

6 Hydrogen and ammonia as the energy carriers — *Lumituuli*	
Chairs	John P. Lemmon, Gongxuan Lu
8:30-9:10	**K9: The role of the Mars–van Krevelen mechanism in the synthesis of ammonia with metal nitride catalysts** Justin S J Hargreaves, University of Glasgow
9:10-9:30	**IO19: Iron-based Mixed Composites as Active and Durable Oxygen Evolution Electrocatalysts** Chizhong Wang, Tsinghua University
9:30-9:50	O20: Photocatalytic Hydrogen Production by RGO/$ZnIn_2S_4$ under Visible Light with Simultaneous Organic Amine Degradation Rongshu Zhu, Harbin Institute of Technology (Shenzhen)
9:50-10:10	O21: Hydrogen generation via LNG reforming process on nickel catalysts Pawel Mierczynshi, Lodz University of Technology
10:10-10:30	**Coffee break**
5 Catalysis with ion transfer in other energy and chemical processes — *Lumituuli*	
Chairs	Pawel Strumillo, Hailei Zhao
10:30-10:50	O27: Ion-conducting oxides intensified alkane aromatization over zeolite catalysts Yan Zhang, Qingdao Institute of Bioenergy and Bioprocess Technology, CAS
10:50-11:10	O28: The Synthesis of Highly Dispersed Ni@MCM-41 for Hydrogenation of Naphthalene at Low Temperature Qingxin Guan, Nankai University
11:10-11:30	**IO6: Efforts in finding the active species for non-aqueous redox flow battery** Yongdan Li, Aalto University
11:30-11:50	O30: Enhanced Visible-Light-Driven Hydrogen Evolution of Ultrathin Narrow Band-gap g-C3N4 Nanosheets Tao Yu, Tianjin University
11:50-12:05	O31: Pickering emulsion interface for continuous-flow catalysis reactions Hengquan Yang, Shanxi University
12:10-12:30	**Lunch (tickets picked up on service desk during coffee break)**

2 Catalysis and ion transfer in fuel cells — *Palaver*	
Chairs	Kari Laasonen, Yicheng Zhao
8:30-8:50	O22: MO_2 (M=Ti, Ce) embedded carbon nanofibers as an effective support of PtRu catalyst for direct methanol fuel cells Nobuyoshi Nakagawa, Gunma University
8:50-9:10	O23: Catalytic requirements for proper electrolyte reactions in single-layer ceramic nanocomposite fuel cells S. Jouttijärvi, Aalto University
9:10-9:30	**IO24: Structure decoration of high performance double perovskite anode materials for SOFCs** Hailei Zhao, University of Science and Technology Beijing
9:30-9:50	**IO25: Semiconductor and heterostructure materials function for both electrolyte and electroctalyst in novel fuel cells** Bin Zhu, China University of Geosciences
9:50-10:10	**IO26: Cutting-edge nanocomposite fuel cell research and challenges** Muhammad Imran Asghar, Aalto University
	Sief
5 Catalysis with ion transfer in other energy and chemical processes — *Palaver*	
Chairs	Sibudjing Kawi, Rongshu Zhu
10:30-10:50	**IO32: Electrochemical reduction of CO_2 to synthesis gas on CNT supported $Cu_xZn_{1-x}O$ catalysts** Jia Yang, Norwegian University of Science and Technology
10:50-11:10	**IO33: Unlocking the Energy and Chemicals in Plant Biomass** Bin Yang, Washington State University
11:10-11:30	**IO34: Metal Nanoparticles Enveloped within Zeolite Crystals as Stable and Selective Catalysts** Fengshou Xiao, Zhejiang University
11:30-11:50	O35: Modeling of Isobutane Alkylation Using Composite Ionic Liquid as Catalyst Weizhen Sun, East China University of Science and Technology
11:50-12:10	O36: First-Principles Evidence and Experimental Verifications on Enhanced Photoeletrocatalytic Efficiency by double Schottky Junctions Xinyong Li, Dalian University of Technology
	Restaurant Konnichiwa, A block, Otaniementie 12, 02150, Espoo

Presentations in waiting list:

Xueli Yao, Interaction analysis of Ni–perovskite and its application as an anode for syngas-fueled solid oxide fuel cells

Tian Gan, A $LaNi_{0.9}Co_{0.1}O_3$ coated $Ce_{0.8}Sm_{0.2}O_{1.9}$ composite anode for solid oxide fuel cells fed with methanol

Lijun Fan, Effects of Surface Modification on the Reactivity of Activated Carbon in Direct Carbon Fuel Cells

Yihan Zhen, An all-iron non-aqueous redox flow battery

Jiashu Yuan, Electrochemical properties and loss mechanisms of all-organic non-aqueous redox flow battery

Qiuyang Huang, Amorphous ZnFeOx as cocatalyst for Ti-doped hematite for photoelectrochemical water splitting

Poster Presentation:	
P01	The influence of the Ni content on the physicochemical and catalytic properties of Ni based catalysts for LNG reforming process Pawel Mierczynshi, Lodz University of Technology
P02	Preparation and Catalytic Reactions with the Excellent Proton Transfer of Porous Hybrid Resin Solid Acid Zhirong Zhu, Tongji University
P03	Cu migration of Cu-SAPO-34 catalyst for NH_3-SCR of NOx during high temperature hydrothermal aging treatment Xin Yong, Tianjin University
P04	Modification of microbial fuel cell anodes using graphene-like MoS_2 nanosheets Zhongliang Liu, Beijing University of Technology
P05	Protonation Characteristics of Layered A_xCoO_2 (A = Li, Na) Phases Irina Aleksandrova, Aalto University
P06	A Study of Magnetic Controlled Gas-liquid-solid Reactor with Surface Modified Core-shell Catalyst Qinghua Liu, China Energy National Institute of Clean and-Low-Carbon Energy (NICE)
P07	Promoting effect of nickel and lanthanum on Cu-ZSM-5 catalyst in NO direct decomposition Miao Wei, Tianjin University
P08	Electrochemical properties and loss mechanisms of all-organic non-aqueous redox flow battery Jiashu Yuan, Tianjin University
P09	Amorphous ZnFeOx as cocatalyst for Ti-doped hematite for photoelectrochemical water splitting Qiuyang Huang, Tianjin University
P10	Research progresses of Photoanodes for Photoelectrochemical Water Splitting Minghui Sun, Tianjin University
P11	Improve the activity of oxygen in $Ce_{0.8}Sm_{0.2}O_{2-\delta}$with the doping of Pr Zhiyong Huang, Tianjin University
P12	Selection and optimization of stable heterocyclic aromatics for nonaqueous redox flow battery Hongyu Yu, Tianjin University
P13	Layered perovskite oxide with in situ exsolved nanoparticles as a highly stable and efficient anode for solid oxide fuel cells Nianjun Hou, Tianjin University
P14	Doped $La_{0.5}Ba_{0.5}MnO_{3-\delta}$Double Perovskite as Fuel Electrode for Solid Oxide Stream Electrolysis Cell Juanjuan Gan, Tianjin University
P15	Construction of Cu_2O-based photocatalyst with enhanced photocatalytic activity and stability under visible light Xue Luan, Tianjin University
P16	An all-iron non-aqueous redox flow battery Yihan Zhen, Tianjin University
P17	Water splitting: amorphous FeyNi1-yOx oxides as efficient electrocatalyst for oxygen evolution reaction Qingqing Wang, Tianjin University
P18	Amorphous $Co_{1-y}Ce_yO_x$ as efficient electrocatalyst for oxygen evolution reaction Lili Pan, Tianjin University
P19	Preparations and Photocatalytic Performances of Cesium Lead Bromide Quantum Dots and Its Water-resistant Composites Xiaoxiao Qian, Aalto University

P20	Electrochemical Study of Titanate Based catalyst in Direct Carbon Fuel Cell using Walnut and Almond Shells Biochar Fuel Amjad Ali, COMSATS University Islamabad
P21	Effects of Surface Modification on the Reactivity of Activated Carbon in Direct Carbon Fuel Cells Lijun Fan, Tianjin University
P22	Interaction analysis of Ni–perovskite and its application as an anode for syngas-fueled solid oxide fuel cells Xueli Yao, Aalto University
P23	ZnO nanoclusters supported on dealuminated zeolite β as a novel catalyst for direct dehydrogenation of propane to propylene Chong Chen, Nankai University