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1074<sup>th</sup> Conference

*Scientific Program*

2<sup>nd</sup> International Conference on

# **Battery and Fuel Cell Technology**

July 27-28, 2017 Rome, Italy



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## OLIMPICA 2

conference**series.com** 09:00-09:25

## Opening Ceremony

## Keynote Forum

09:25-09:30 Introduction

09:30-10:10 Title: Oxygen ion conducting materials for energy conversion in fuel cells and batteries  
Manfred Martin, RWTH Aachen University, Germany

10:10-10:50 Title: Semiconductor-ionic materials for low temperature solid oxide fuel cells and electrolyte-layer free fuel cells

Muhammad Afzal, KTH Royal Institute of Technology, Sweden

Networking and Refreshments Break 10:50-11:10 @ Foyer

## Workshop

11:10-12:10 Title: Batteries and fuel cells are key technologies in the future energy production  
Katsutoshi Ono, Kyoto University, Japan

Sessions: Primary Cell Batteries | Secondary Cell Batteries | Design and Technology of Batteries | Applications of Batteries | Latest Developments in Batteries

Session Chair: Manfred Martin, RWTH Aachen University, Germany

## Session Introduction

12:10-12:35 Title: High capacity anode with Si nanopowder fabricated from swarf for lithium ion battery  
Takatoshi Matsumoto, Osaka University, Japan12:35-13:00 Title: The development of a decision-making framework for intelligent Energy Storage System  
Jun-Hyung Ryu, Dongguk University, South Korea

Lunch Break 13:00-14:00 @ Hotel Restaurants

14:00-14:25 Title: Structural Change and Thermal Properties of NCA/LiMn<sub>2</sub>O<sub>4</sub> Blend Materials during the Charging Process  
Chunman Zheng, National University of Defense Technology, China14:25-14:50 Title: Theories of on-board hydrogen redox electric power generators for infinite cruising range electric vehicles  
Katsutoshi Ono, Kyoto University, Japan14:50-15:15 Title: Primary Lithium batteries passivation Characteristics and effects in LiSOCl<sub>2</sub> chemistries  
Shridhar Pandey, Ramway New Energy Co. Ltd., China

Networking and Refreshments Break 15:15-15:35 @ Foyer

15:35-16:00 Title: Nano-sized lithium-rich cathode 0.4Li<sub>2</sub>MnO<sub>3</sub> 0.6Li[Ni<sub>1/3</sub>Mn<sub>1/3</sub>Co<sub>1/3</sub>]<sub>2</sub>O<sub>2</sub> prepared by resorcinol-formaldehyde assisted sol-gel method  
Yujie Li, National University of Defense Technology, China16:00-16:25 Title: Graphene oxide coated S particles with long cycle life for lithium sulfur battery  
Liu Shuangke, National University of Defense Technology, China16:25-16:50 Title: An analysis of vanadium redox flow battery performance under various operating conditions  
Jungmyoung Kim, Changwon national University, South Korea16:50-17:15 Title: Microgrid energy storage using Lithium-Sulfur Batteries: Feasibility of solvent-in-salt electrolytes  
Ashley Brew, OXIS Energy Ltd, UK

## Panel Discussion

**Day 2 July 28, 2017**

**OLIMPICA 2**

**Keynote Forum**

**09:00-09:40** Title: A selective hybrid stochastic approach to proton exchange membrane fuel cells multi parameter identification

**Massimo Guarnieri**, University of Padua, Italy

**09:40-10:20** Title: Measurement techniques and related challenges involved in the gas diffusion electrode characterization of PEM fuel cell stack

**Arunkumar Jayakumar**, Auckland University of Technology, New Zealand

**Networking & Refreshments Break 10:20-10:40 @ Foyer**

**Sessions: Classification of Fuel Cells | Applications of Fuel Cells | Hydrogen Energy | Super Capacitors vs. Battery | Various Energy Materials**

**Session Chair: Arunkumar Jayakumar**, Auckland University of Technology, New Zealand

**Session Introduction**

**10:40-11:05** Title: Development of a pure oxygen and pure hydrogen fuel cell generator for small under water vehicles

**Nai-Chien Shih**, Ming Dao University, Taiwan

**11:05-11:30** Title: Supercapacitor with improved performance based on ALD-developed two-dimensional WO<sub>3</sub>/TiO<sub>2</sub> heterojunction

**Serge Zhuiykov**, Ghent University Global Campus, South Korea

**11:30-11:55** Title: Fuel cell performance of SPEEK-PEG-PWA composite membrane

**Mamta Kumari**, Homi Bhabha National Institute, India

**11:55-12:20** Title: Preparation and characterization of PVC-SP(ST-co-AN) membranes for proton exchange membrane fuel cell applications

**Mohamed A Abu-Saied**, Advanced Technologies and New Materials Research Institute, Egypt

**12:20-12:45** Title: The potential of micro-fuel cells to power the pacemaker-A critical assessment on material selection

**Arunkumar Jayakumar**, Auckland University of Technology, New Zealand

**Lunch Break 12:45-13:45 @ Hotel Restaurants**

**13:45-14:10** Title: Doping strategies in NdBaCo<sub>2</sub>O<sub>5+δ</sub> layered perovskites cathodes for IT-SOFCs

**Renato Pelosato**, Politecnico di Milano, Italy

**14:10-14:35** Title: Graphene oxide membranes as alternative electrolytes for PEM fuel cells

**Giovanni Dotelli**, Politecnico di Milano, Italy

**14:35-15:00** Title: Development of a Bi-Cell proton exchange membrane fuel cell with optimized groove-designed piezoelectric actuator

**Yuan-Lung Hsu**, National Taiwan University, Taiwan

**15:00-15:25** Title: Magnetically driven piezoelectric proton exchange membrane fuel cell stack with built-in manifold

**Po-Ching Hsu**, National Taiwan University, Taiwan

**Networking & Refreshments Break 15:25-15:45 @ Foyer**

**Poster Presentations 15:25-16:25**

**BFCT-01** Title: Detection of coolant leakage in thermal management system of fuel cell vehicle with fault-detection algorithm

**Sangseok Yu**, Chungnam National University, South Korea

**BFCT-02** Title: Alternative stack topologies for vanadium redox flow batteries

**Andrea Trovò**, University of Padua, Italy

**BFCT-03** Title: Composite protection layer coated patterned lithium-metal anode for lithium secondary batteries

**S W Kim**, Hanbat National University, South Korea

- BFCT-04** Title: **Water-based ceramic coating separator for lithium metal secondary batteries by using plasma treatment**  
**Hyunkyu Jeon**, Hanbat National University, South Korea
- BFCT-05** Title: **Improved electrochemical performances of Lithium-ion batteries by adding ceramic nanoparticles**  
**Dahee Jin**, Hanbat National University, South Korea
- BFCT-06** Title: **Improvement of the electrochemical performance of Si anodes by use of ultrathin polydopamine coating upon conductive carbon particles**  
**D Song**, Hanbat National University, South Korea
- BFCT-07** Title: **Preparation and properties of ionic liquid-based quasi-solid polymer electrolytes for high safer lithium batteries**  
**Qingpeng Guo**, National University of Defense Technology, China

**Panel Discussion**  
**Awards & Closing Ceremony**

