

Symposia - A01
Energy Materials for Sustainable Development

October 15 (Sunday), 2023

Conference Room: 5306, 3# floor

9:00-10:35 Session I

Chair: Jow-Lay Huang

9:00-9:20 (A01-01)

Si- and Li-Si based anode materials for LIBs: Research and industrialization
(Invited)

Huaiyu Shao, *University of Macau, Macau China*

9:20-9:40 (A01-02)

Novel-solvation-structure electrolytes for better lithium batteries *(Invited)*

Jianhui Wang, *Westlake University, China*

9:40-10:00 (A01-03)

Unassisted cold start at -52 °C of PEMFC stacks *(Invited)*

Zhigang Qi, *Innoreagen Power Technology CO., LTD, China*

10:00-10:20 (A01-04)

Mg(BH₄)₂-based Mg-ion conductors and the conduction mechanism *(Invited)*

Yigang Yan, *Sichuan University China*

10:20-10:35 (A01-05)

Graphene: Production, characterisation and energy applications *(Oral)*

David Dodoo-Arhin, *University of Ghana, Ghana*

10:35-10:45 Coffee Break

10:35-11:55 Session II

Chair: Huaiyu Shao

10:35-10:55 (A01-06)

Investigation of aluminum doping in stoichiometrically non-stoichiometric titanium dioxide as an anode material for lithium-ion batteries/in operando XRD analysis *(Invited)*

Jow-Lay Huang, *National Cheng Kung University, Taiwan China*

10:55-11:10 (A01-07)

Fabrication of organic solar cell active layer with optical enhancement characteristics – experiments and models *(Oral)*

Benjamin Agyei-Tuffour, *University of Ghana, Ghana*

11:10-11:25 (A01-08)

A hybrid hole transport layer for perovskite-based solar cells *(Oral)*

Joseph Asare, *University of Ghana, Ghana*

11:25-11:40 (A01-9)

Redox-active nitroxide radicals with MXene Ti₃C₂T_x as conductive film-forming agent in aqueous electrolyte *(Oral)*

Binxia Chen, *Polymer Research Institute of Sichuan University, China*

11:40-11:55 (A01-10)

Bulk modification of porous TiNb₂O₇ microsphere to achieve superior lithium-storage properties at low-temperature *(Oral)*

Gengchen Yu, *Shandong University of Science and Technology, China*

12:00-14:00 Lunch

14:00-15:20 Session III

Chair: Ying Wu

14:00-14:20 (A01-11)

Development of low-iridium-content perovskite anode catalyst for proton-exchange membrane water electrolyzer *(Invited)*

Atsushi UNEMOTO, *Tokyo Gas Co., Ltd, Japan*

14:20-14:40 (A01-12)

Thermodynamic tuning of MgH₂ for hydrogen storage *(Invited)*

Hai-Wen Li, *Hefei General Machinery Research Institute, China*

14:40-15:00 (A01-13)

Research progress of hydrogen storage materials and devices in Baotou Research Institute of Rare Earths (BRIRE) (*Invited*)
Yuyuan Zhao, *Baotou Research Institute of Rare Earths, China*

15:00-15:20 (A01-14)

The application of hydrogen-containing phase diagram calculations on the design of Mg-RE hydrogen storage alloy (*Invited*)
Qun Luo, *Shanghai University, China*

15:20-15:30 *Coffee break*

15:30-17:30 **Session IV**
Chair: Hai-Wen Li

15:30-15:50 (A01-15)

Key technology and application of hydrogen storage alloy in hydrogen supply system for PEM fuel cell (*Invited*)
Ying Wu, *North China Electric Power University, China*

15:50-16:10 (A01-16)

Optimization of the hydrogen dissociation/diffusion processes in the Mg-based hydrogen storage materials (*Invited*)

Yangfan Lu, *Chongqing University, China*

16:10-16:30 (A01-17)

Neutron diffraction and inelastic neutron scattering studies on Co substituted YMgNi₄-based hydrogen storage materials (*Online*) (*Invited*)

Toyoto SATO, *Shibaura Institute of Technology, Japan*

16:30-16:50 (A01-18)

Hydrogen and carbon dioxide adsorption on microporous self-activated carbon foams (*Online*) (*Invited*)

Stephen Lyth, *University of Strathclyde, UK*

16:50-17:10 (A01-19)

Hydrogenation of liquid organic hydrogen carriers at room temperature (*Invited*)

Teng He, *Dalian Institute of Chemical Physics, Chinese Academy of Sciences, China*

17:10-17:30 (A01-20)

Layered niobium carbide MXenes for improving hydrogen storage properties of Li-Mg-B-H composite (*Invited*)

Haizhen Liu, *Guangxi University, China*