

VIRTUAL CONFERENCE ON

**FUTURE  
ENERGY  
MATERIALS**

**March 22-23, 2021**

# DAY-01

TIME  
PDT

Speaker's  
Local  
Time

March 22, 2021 (Monday)  
(08:00-16:45) PDT

08:00 Join the meeting (AV Check)

## Session 1

### Keynotes

08:10 5:10 PM (GMT+2) Halide Perovskites Beyond PV: A New Path to Energy Materials Sustainability?  
**David Cahen**, Weizmann Institute of Science & Bar-Ilan University, Israel

08:50 4:50 PM (GMT+1) Functional 2D Materials and Devices for High-Power Energy Storage  
**Xinliang Feng**, Technische Universität Dresden, Germany

09:30 9:30 AM (GMT-7) From Atom to System - How to Enable Terawat-hour(TWh) Scale Energy Storage  
**Ying Shirley Meng**, University of California San Diego, USA

### Invited Talks

10:10 13:10 PM (GMT-4) Solution-Processed Perovskite Photovoltaics: From In situ Characterization to Robotic Experimentation  
**Aram Amassian**, North Carolina State University, USA

10:40 10:40 AM (GMT-7) Myth and Truth of Oxygen Redox Activities in Battery Cathodes: A View from Soft X-Ray Spectroscopy  
**Wanli Yang**, Lawrence Berkeley National Laboratory, USA

11:10 11:10 AM (GMT-7) Leveraging Reversible Chemistry for Materials Sustainability in Energy Storage  
**Zheng Chen**, University of California San Diego, USA

## 11:40-11:55

### Session Break

## Session 2

### Keynotes

11:55 11:55 AM (GMT-7) Developing Next Generation Energy Storage Technologies  
**Jun Liu**, University of Washington, USA

12:35 3:35 PM (GMT-4) Next Generation Rechargeable Zinc-Air Batteries  
**Zhongwei Chen**, University of Waterloo, Canada

13:15 7:15 AM March 23 (GMT+11) What to Expect From Silicon Photovoltaics Over the 2020-2030 Decade  
**Martin Green**, University of New South Wales, Australia

### Invited Talks

13:55 7:55 AM March 23 (GMT+11) 100% Renewables and Pumped Hydro Energy Storage  
**Andrew Blakers**, Australian National University, Australia

14:25 5:25 PM (GMT-4) Photovoltaics in the Atomically-Thin Limit: Promising or Pipe Dream?  
**Deep Jariwala**, University of Pennsylvania, USA

14:55 2:55 PM  
(GMT-7) Electrochemical Capacitors: Electrode Materials and Performance  
**Andrew Burke**, University of California-Davis, USA

### Selected Oral Presentations

15:25 11:25 PM  
(GMT+1) Halide Perovskite Solar Cells: Strategies for High Stability  
**Monica Lira-Cantu**, Catalan Institute of Nanoscience and Nanotechnology,  
Spain

15:45 06:45 AM  
March 23  
(GMT+8) Metal@Semiconductor Hetero-Nanocrystals: Heterointerface Control and Photocatalysis Applications  
**Jiatao Zhang**, Beijing Institute of Technology, China

16:05 07:05 AM  
March 23  
(GMT+8) State of the Art and Research Directions for Thermal Energy Storage Materials at Sub-Zero Temperature Ranges  
**Alessandro Romagnoli and Yang Lizhong**, Nanyang Technological University, Singapore

16:25 04:25 PM  
(GMT-7) Thiosquaraines as Heavy-Atom-Free Photon Upconversion Sensitizers  
**Cody Schlenker**, University of Washington, USA

### Selected Poster Presentations

16:45 4:45 PM  
(GMT-7) 3D Architected Pyrolytic Carbon Electrodes for Lithium Ion Batteries  
**Kai Narita**, California Institute of Technology, USA

# DAY-02

TIME  
CET

Speaker's  
Local  
Time

March 23, 2021 (Tuesday)  
(10:20-17:00) CET

10:20 Join the meeting (AV Check)

## Session 3

### Keynote

#### Chair

**Fatima Montemor**, University of Lisbon, Portugal

10:30 9:30 AM (GMT) Bridging the Gap Between Performance and Sustainability in the Next Generation Energy Storage and Conversion Technologies  
**Magda Titirici**, Imperial College London, UK

### Invited Talks

11:10 6:10 PM (GMT+8) One Dimensional Nanomaterials for Emerging Energy Storage  
**Liqiang Mai**, Wuhan University of Technology, China

11:40 6:40 PM (GMT+8) Copper-Substituted  $\text{Na}_x\text{MO}_2$  (M=Fe, Mn) Cathodes for Sodium Ion Batteries  
**Xiaobo Ji**, Central South University, China

12:10 12:10 PM (GMT+1) Up- and Down Converting Light in Solar Energy Conversion Schemes  
**Dirk Guldi**, Friedrich-Alexander-Universitaet Erlangen-Nuernberg, Germany

12:40 7:40 PM (GMT+8) Functionalization of Renewable Materials for Materials Sustainability  
**Jose Rajan**, Universiti Malaysia Pahang, Malaysia

### Selected Oral Presentations

13:10 1:10 PM (GMT+1) Two-dimensional Doping of Proton Conductors  
**Prosper Ngabonziza**, Max Planck Institute for Solid State Research, Germany

13:30 1:30 PM (GMT+1) Photovoltatronics: Intelligent PV-based Devices for Energy and Information Applications  
**Olindo Isabella**, Delft University of Technology, Netherlands

### Selected Poster Presentations

13:50 8:50 PM (GMT+8) Phase Change Energy Storage Composite Material with Assembled Graphene Skeleton for Thermal Conductivity Enhancement  
**Li Kong**, Harbin Engineering University, China

14:00-14:10

### Session Break

## Session 4

### Keynote

#### Chair

**Xiaobo Ji**, Central South University, China

14:10 1:10 PM (GMT+1) New Directions in Solid State Chemistry Enabling Clean Energy Conversion and Storage  
**John Irvine**, University of St Andrews, UK

### Invited Talks

14:50 1:50 PM (GMT+1) Tailored Electrodes Based on Transition Metal Compounds for Hybrid Supercapacitors: A New Path to Enable Electrochemical Energy Storage  
**Fatima Montemor**, University of Lisbon, Portugal

### Selected Oral Presentations

15:20 3:20 PM (GMT+1) Detailed Band Diagram Determination of Perovskite Solar Cells Using Photo electron Spectroscopy on Step by Step Prepared Devices and Using Tapered Cross Sections of Full Devices  
**Thomas Mayer**, Darmstadt University of Technology, Germany

15:40 11:40 PM (GMT+9) Hybrid Electrode With High Optical & Electrical Property and Durability for Flexible Solar Cells  
**Soyeon Kim**, Korea Institute of Materials Science, Korea

16:00 4:00 PM (GMT+1) Stability of the Oxidized Form of RuLL'(NCS)<sub>2</sub> Dyes in Acetonitrile in the Presence of Water and Pyridines – Why the Dye-Sensitized Solar Cell Electrolyte Should be Dry  
**Torben Lund**, Roskilde University, Denmark

### Keynote

16:20 4:20 PM (GMT+1) Perovskite on Silicon: Towards 30 Percent Industrial, Stable and Cost-Effective Solar Cells ?  
**Christophe Ballif**, EPFL and CSEM, Switzerland

### Selected Poster Presentations

17:00 5:00 PM (GMT+1) Engineering Interface of TiC Electrodes for Li-air Batteries  
**Elmar Kataev**, Helmholtz-Zentrum Berlin, Germany

#### Organising Partner

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