

SCIENTIFIC PROGRAM

Sunday, September 15

18:00-20:00 Registration (“Palais des congrès” – Arcachon)

19:00-21:30 Welcome party

Monday, September 16

8:30-9:00 Opening - C. Delmas, Chairman

9:00-9:40 **INV1** "Future Perspectives of All-Solid-State Batteries: synthesis, interfacial engineering and recycling"
Prof. Shirley Meng (University of California San Diego- USA)

9:40-10:20 **INV2** "High-Nickel Layered Oxide Cathodes for Lithium-ion Batteries: Complexities and Prospects"
Prof. Arumugam Manthiram (University of Texas at Austin - USA)

10:20-10:50 Coffee Break

10:50-12:30 Poster session

12:30-14:30 Lunch break

14:30-16:40 **NMC**

O01 Effect of salts and solvent composition on NCA cathode cyclability with temperature

Joseph Chidiac- Université de Tours (France)

O02 Atomic layer fluorination: influence of the surface fluorination on electrochemical properties of Li-ion positive electrodes

Nicolas Louvain - Université de Montpellier (France)

O03 Elucidating the degradation of Ni-rich layered oxide in humid environment

Leiting Zhang - Paul Scherrer Institute (Switzerland)

O04 Evolution of structure and lithium dynamics in $\text{LiNi}_{0.8}\text{Mn}_{0.1}\text{Co}_{0.1}\text{O}_2$ (NMC811) cathodes during electrochemical cycling probed by solid-state NMR

Katharina Märker - University of Cambridge (UK)

O05 Facile dry coating method of a high nickel NMC cathode material by nanostructured fumed Al_2O_3 to improve the performance of lithium-ion Batteries

Marcel Herzog - Justus-Liebig-University Giessen (Germany)

O06 Lithium Silicate Inclusion for Mitigating Crack Formation of Ni-rich NCM Cathode Materials

Minoru Inaba - Doshisha University (Japan)

O07 Structural, Electronic, and Li Diffusion Properties of the $\text{LiNi}_{0.8}\text{Mn}_{0.1}\text{Co}_{0.1}\text{O}_2$ (NMC811) Cathode Material

Mazharul M. Islam - University of Bath (UK)

- O08** Transition metal dissolution in NMC811, graphite, lithium-ion cells
Zachary Ruff - University of Cambridge (UK)

>> **General discussion**

16:40-17:10 *Coffee Break*

17:10-18:10 **LI AIR**

- O09** Nanoscale phase evolution in Li-O₂ batteries as seen by operando small angle X-ray scattering
Christian Prehal - Graz University of Technology (Austria)

- O10** Singlet oxygen in non-aqueous batteries: origins, consequences and mitigation
Yahn Petit - ICTM, TU Graz (Austria)

LI SULFUR

- O11** Double-shelled nanocages as efficient sulfur hosts for advanced lithium-sulfur batteries
Lei Zhou - Eindhoven University of Technology (The Netherlands)

- O12** Metal oxides and nitrides for efficient sulfur composite cathodes in Li-S batteries
Carlotta Francia - DISAT- Dept. of Applied Science and Technology (Italy)

18:10-19:00 **Poster Session**

19:00 **Welcome Cocktail**

Tuesday, September 17

- 8:30-9:10** **INV3** “K-Ion Batteries: Electrodes and Electrolyte”
Prof. Shinichi Komaba – Tokyo University of Science (Japan)

9:10-10:20 **NA-K LAYERED**

- O13** Advances in Faradion’s High Energy Density Sodium-ion Batteries
Ashish Rudola- Faradion Limited (UK)

- O14** Electrochemical cycling of the P2-Na_{2/3}Co_{1/2}Mn_{1/3}Ni_{1/6}O₂ electrode material for sodium-ion batteries
Ismaël Saadouné - Mohammed VI Polytechnic University (Morocco)

- O15** In situ diffraction of pristine and cobalt-doped potassium layered oxide K_xMnO₂
Christophe Didier - University of Wollongong (Australia)

- O16** Sodium and Potassium Insertion Mechanism into Manganese Hexacyanoferrate
Tomooki Hosaka - Tokyo University of Science (Japan)

- O17** Structural insights into O3-type Na-ion layered oxide cathodes: establishing correlations between local structure and electrochemistry
Abhinav Tripathi - National University of Singapore (Singapore)

>> **General discussion**

10:20-10:50 *Coffee Break*

10:50-12:30 **SOLID STATE**

- O18** **Advanced insights into a “simple” system: the Na₃PS₄ ion conductor**
Theodosios Famprikis - Université de Picardie Jules Verne (France)
- O19** **Behavior of Lithium Cobalt Oxide in Two- and Three-Electrode All-Solid-State Cells**
Hajime Arai - Tokyo Institute of Technology (Japan)
- O20** **Lithium-Ion Transport in Halogen-Enriched Argyrodite Solid-State Electrolytes**
David Bazak- McMaster University (Canada)
- O21** **Reversible capacity and decomposition mechanism in argyrodite Li₆PS₅Cl solid electrolyte for all solid state Li-ion batteries**
Violetta Arszewska - Delft University of Technology (The Netherlands)
- O22** **The stabilization of the Lithium Metal Anode via an artificial Solid Electrolyte Interphase**
Katharina M. T. Thanner - Helmholtz Institute Ulm (Germany)
- O23** **Towards improved solid state batteries with hybrid electrolytes: insights on PEO interfaces using a surface science approach**
Thimo H. Ferber - Technical University of Darmstadt (Germany)

>> **General discussion**

12:30-14:30 *Lunch break*

14:30-15:10 **INV4** **“Structural disorder in battery materials”**
Prof. Montse Casas-Cabanasa - CIC EnergiGUNE (Spain)

15:10-16:20 **INTERFACE**

- O24** **An Effective Electrolyte Additive for High-Voltage Graphite || NMC111 Cells with Excellent Cycling Performance**
Jan-Patrick Schmiegel - University of Münster (Germany)
- O25** **Chemistry of Lithium Metal Battery vs. Anode Free Lithium Metal battery**
Bing-Joe Hwang - National Taiwan University of Science and Technology (Taiwan)
- O26** **Stable cycling of Si Nanowire electrodes enabled by fluorine free ionic liquids electrolytes**
Niyousha Karimi - Helmholtz Institute Ulm (Germany)
- O27** **The Mechanism of Interfacial Processes on Intermetallic Li-ion Anodes**
Robert Kostecki - Lawrence Berkeley National Laboratory (USA)
- O28** **The Study of Solid Electrolyte Interphase for Electrochemically Plated Lithium Metal Anodes on Copper Current Collector**
Svetlana Menkin - University of Cambridge (UK)

O29 Using synergistic effects by tailoring electrolyte additives for lithium ion batteries with silicon-based anodes

Roman Nölle - University of Münster (Germany)

>> **General discussion**

16:20-17:00 Poster session
Coffee Break

18:00 Departure by bus to the banquet

19:00 Banquet in Bordeaux – Martillac “Château Smith Haut Lafitte”

Wednesday, September 18

8:30-9:10

INV5

Insights from High Resolution Transmission Electron Microscopy and Spectroscopy Study of Electrode Materials for Lithium Ion Batteries
Prof. Chongmin Wang - Pacific Northwest National Laboratory (USA)

9:10-10:25

CHARACTERIZATION 1

O30 In-situ magic-angle spinning NMR analysis of a full graphite/LiCoO₂ electrochemical cell

Annica I. Freytag - McMaster University (Canada)

O31 Interfacial atomic and electronic structures between delithiated and pristine regions in Li₂MnO₃

Kei Nakayama - University of Tokyo (Japan)

O32 Linking Li-Ion Batteries Cathodes' Performances to Their Microstructural Properties Using Nano Imaging and Multi Physics Modeling

Youcef Kerdja - Université Grenoble Alpes (France)

O33 Operando Neutron Depth Profiling, Recent Insights gained for Li-ion Batteries

Tomas Verhallen - Delft University of Technology [[DELFT] (Netherlands)

O34 Operando XPS for a direct monitoring of the solid electrolyte stability and (de-) lithiation reactions of SnO₂ in all solid-state batteries

Mario El Kazzi - Paul Scherrer Institut (Switzerland)

>> **General discussion**

10:25-11:15 *Coffee Break and Poster session*

11:15-12:30

CHARACTERIZATION 2

O35 Operando XPS: a new approach for lithium/electrolyte interface study

Anass Benayad – Univ. Grenoble Alpes, CEA, LITEN (France)

O36 SEI Formation in Li-ion batteries studied by EIS/EQCM-D

Petr Novak - Paul Scherrer Institut (Switzerland)

O37 The ALBA synchrotron : a well suited large scale facility for various In Situ synchrotron techniques on Operando batteries

Francois Fauth - ALBA Synchrotron light source [Barcelone] (Spain)

O38 The degradation origin of Si-based all-solid-state thin-film Li-ion micro-batteries

Chunguang Chen - Forschungszentrum Jülich (IEK-9) (Germany)

O39 What about neutron diffraction to characterize your Li-ion batteries?

Emmanuelle Suard - Institut Laue-Langevin (France)

>> **General discussion**

12:30

FREE AFTERNOON

Thursday, September 19

8:30-9:10

INV6

Oxygen redox reaction mechanism in Na layered oxides of

$\text{Na}_x[\text{Li}_{x/3}\text{Mn}_{1-x/3}]\text{O}_2$

Prof. Yong-Sheng Hu - Inst. of Chem., Chinese Academy of Sciences (China)

9:10-10:20

POSITIVES OTHER 1

O40 Ceramic Synthesis of Disordered Lithium Rich Oxyfluorides Materials and the Their Performances in Li-ion Batteries

V. Bracamonte - National Institute of Chemistry (Slovenia)

O41 Electronic structure of layered cathode materials and interfaces: experimental results and implications

R. Hausbrand - Technical University of Darmstadt, Institute of Materials Science (Germany)

O42 In Situ X-ray diffraction on Operando lithium battery: solvent co-intercalation in TiS_2

R. Houdeville - ALBA Synchrotron light source [Barcelone] (Spain)

O43 Insights into delithiation and oxygen loss in the disordered rock salt cathode $\text{Li}_4\text{Mn}_2\text{O}_5$

Oriol Lamiel - University of Bath [Bath] (United Kingdom)

O44 Multi-anionic and -cationic compounds: New high entropy materials for advanced Li-ion batteries

Qingsong Wang - Institute of Nanotechnology, Karlsruhe Institute of Technology (KIT) (Germany)

>> **General discussion**

10:20-10:40

Coffee Break

10:40-12:30

POSITIVES OTHER 2

O45 New Lithium-rich layered titanium sulfide positive electrode materials with high and fully reversible capacity

Brigitte Pecquenard - ICMCB Université de Bordeaux (France)

LiBD-9 2019 – “Electrode materials” Arcachon, France September 15-20, 2019

O46 On the Transport Properties of $\text{LiNi}_{0.5}\text{Mn}_{1.5}\text{O}_4$ for Fast Charged Li-Ion Batteries

Ilias Belharouak - Oak Ridge National Laboratory (USA)

O47 Predicting the long term stability upon anionic redox by modeling the coupling between electronic and atomic structures

Jean Vergnet - Collège de France, Chimie du Solide et de l'Énergie (France)

O48 Redox Chemistry and Local Structures of Lithium Manganese Oxyfluoride as a New Cathode Material

Ryan Sharpe - University of Bath (UK)

O49 Searching for High Potential Organic Cathode Materials for High Energy Green and Sustainable Batteries

Nicolas Dupré - Institut des Matériaux Jean Rouxel (France)

>> **General discussion**

12:30-14:30 Lunch break

14:30-15:10 **INV7** **Crystal Chemistry of NASICON-type positive electrodes for Na-ion Batteries**

Christian Masquelier - LRCS, Université de Picardie Jules Verne (France)

15:10-16:20 **POLYANION**

O50 A comparative study of the diffusion kinetics of Li and Na in olivine (triphylite) $(\text{Li,Na})\text{FePO}_4$

Damien Saurel - CIC Energigune (Spain)

O51 Novel oxalates as positive electrodes for lithium and sodium-ion batteries

A. Robert Armstrong - University of St Andrews (France)

O52 Stability in water and electrochemical properties of the $\text{Na}_3\text{V}_2(\text{PO}_4)_2\text{F}_3 - \text{Na}_3(\text{VO})_2(\text{PO}_4)_2\text{F}$ solid solution

Long H. B. Nguyen – ICMCB, CNRS, Univ. Bordeaux (France)

O53 Structure impact on electrochemical properties of polyanion-type cathode materials

Nellie.R. Khasanova - Lomonosov Moscow State University (Russia)

>> **General discussion**

16:20-16:50 Coffee break

16:50-18:00 **Li-NEGATIVE**

O54 Development of high potential negative electrode for Li-Ion batteries

Mercier-Guyon Benjamin - Université Grenoble Alpes, CEA, LITEN (France)

O55 Study aging of conversion electrode materials: case of NbSnSb

Coquil Gaël - Institut de Chimie Moléculaire et des Matériaux de Montpellier (France)

CARBON

O56 First-principles calculations of fluorine-ion migration in graphite

Moriwake Hiroki - Japan Fine Ceramics Center (Japan)

O57 High order free energy models for the numerical investigation of staging in multi-layered compounds

Chandesris Marion - CEA-LITEN, DEHT (France)

O58 Modulated Li_xC structural transformation with x naturally enables lithium diffusion along the c-axis direction

Matsunaga Toshiyuki - CEA-LITEN, DEHT (France)

O59 Understanding the Na Storage Mechanism in Disordered Carbon via Density Functional Theory Calculations

Vasileiadis Alexandros - TU Delft (The Netherlands)

>> **General discussion**

Friday, September 20

8:30-9:10

INV8

“Pre-Lithiation Approaches for Boosting High-Energy Lithium Ion Cells”

Tobias Placke - MEET Battery Research Center (Germany)

9:10-9:50

INV9

“Operando Analysis for Charge/Discharge Reaction Mechanism of Graphite Anode of Li Ion Battery”

Prof. Hiroyuki Fujimoto – Office of Society-Academia Collaboration for Innovation, Kyoto University (Japan)

9:50-10:10

RECYCLING

Circular Economy: when today's Li-ion batteries surge can become tomorrow's solution

O60

Mickael Dollé - Département de Chimie, Université de Montreal (Canada)

10:10-10:30

Coffee break

10:30-12:00

Discussions on transverse topics

Conclusion