

IBA2016 | International Battery Association

Nantes, FRANCE

March 20-25

NANTES



Nantes Events Center, France



IMN
INSTITUT DES MATÉRIAUX
JEAN ROUXEL



ERRATUM / ADDENDUM

- A poster has been added :

Session 3 – Wednesday 23

POS89

Phase behaviour and conductivity in phosphonium-based organic ionic plastic crystals mixed with sodium salts

Faezeh Makhlooghi Azad, IFM and ARC, Deakin University, Geelong, Australia

- The following poster has been cancelled by the authors :

POS14

Spray-drying synthesis of $Na_3V_2(PO_4)_2F_3$ as cathode material in hybrid-ion batteries

Nicolas Eshraghi, University of Liège, Belgium

- The following posters originally scheduled on Tuesday, is now scheduled on Monday :

POS41

A $Li_2MnSiO_4@rGO$ composite with enhanced electrochemical performance as cathode material for lithium-ion batteries

Shuangke Liu, National University of Defense Technology, Changsha, China

Phase behaviour and conductivity in phosphonium-based organic ionic plastic crystals mixed with sodium salts

Faezeh makhlooghi Azad^a, Patrick C. Howlett^b, Maria Forsyth^c

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^{b,c} ARC Centre of Excellence for Electromaterials Science, IFM-Institute for Frontier Materials, Deakin University, Geelong, Australia

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Organic ionic plastic crystals are highly promising solid state conductors for battery applications which have attracted much attention recently. Their unique properties include various solid-solid phase transitions before melting which causes a disordered phase after each transition, combined with negligible volatility, electrochemical and thermal stability have prompted many researchers to investigate different kinds of OIPCs, especially for the Li device applications. Nevertheless, due to some advantages of Na batteries versus Li devices and given that just two studies^{1,2} have been conducted on mixtures of OIPCs with Na salts, this work focuses on a study of the physicochemical behaviour of the phosphonium cation organic ionic plastic crystal (OIPC) trimethylisobutylphosphonium bis(trifluoromethanesulfonyl)imide $P_{111i4}NTf_2$ (figure 1) upon addition of $NaNTf_2$ to determine the phase behaviour and derive fundamental understanding of the structure and dynamics in these mixtures.

The properties of these electrolytes, including phase behaviour and ion conductivity, have been studied using differential scanning calorimetry (DSC), electrochemical impedance spectroscopy (EIS), electrochemical techniques and nuclear magnetic resonance (NMR) spectroscopy.

The phase diagram for the $P_{111i4}NTf_2/NaNTf_2$ binary systems is determined (figure 2) and shows: (1) a eutectic transition at 35°C with the composition of 5 mol% (2) a mixed salt crystalline phase at 20 mol% of $NaNTf_2$ with a stoichiometry of 4/1 ($P_{111i4}NTf_2/NaNTf_2$) (3) an incongruous melting of this new crystalline phase at 45°C which is probably a result of a peritectic reaction. Synchrotron XRD, solid-state NMR and SEM all consistent with the proposed phase diagram. Conductivity measurements indicate that ionic conductivity of two compositions (25 mol% and 50 mol%) high even in the solid state. This work suggests that these materials could be used as solid state electrolytes for all-solid state sodium batteries and will be the topic of future work.

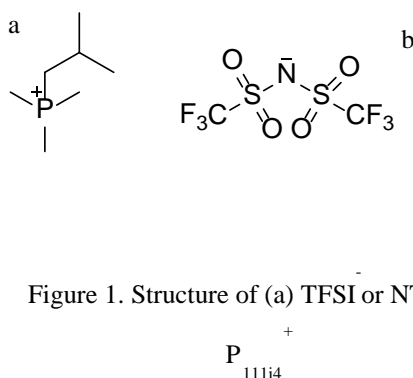


Figure 1. Structure of (a) TFSI or NTf_2^- (b)

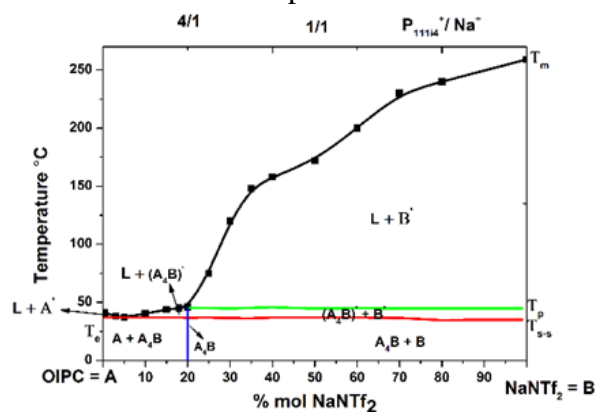


Figure 2. Phase diagram of mixed $P_{111i4}NTf_2/NaNTf_2$

[1] M. Forsyth, T. Chimdi, A. Seeber, D. Gunzelmann, P.C. Howlett, J. Mater. Chem.A, 2 (2014) 3993–4003.

[2] T. Chimdi, D. Gunzelmann, J. Vongsvivut, M. Forsyth, J. Solid State Ionics 272 (2015) 74–83.



Program of oral presentations



Sunday 20

18:00 **Welcome Party & Welcome Desk**

Monday 21

07:30 **Welcome Desk**

08:15 **Welcome Address**

Dominique GUYOMARD	(IBA2016 Chairman and IBA President)
Guy OUVRARD	(IMN Director)
Karine DANIEL	(Nantes Métropole and Région Pays-de-la-Loire)
Michael THACKERAY	(IBA Chairman of the Board)

SESSION 1	Future of batteries and battery materials	Chairpersons : Michael Thackeray and Doron Aurbach
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Plenary Lecture

08:45 **PLE1** *Materials advanced for better Li(Na) ion batteries*
Jean-Marie TARASCON, Collège de France, Paris, France

Keynote Lecture

09:15 **KEY1** *Progress in moving scientific discovery into battery technologies : the risk and the opportunity*
Jeffrey P. CHAMBERLAIN, Argonne National Laboratory, USA

Invited Talks

- 09:40 **INV1** *An overview of the behavior overlithiated Li(Li,Mn,Co,Ni)O₂ layered oxides in lithium-ion batteries*
Claude DELMAS, Université de Bordeaux, France
- 10:00 **INV2** *Temperature-driven order-disorder transitions in Na₃V₂(PO₄)₂F₃ and Na₃V₂(PO₄)₃ positive electrodes*
Christian MASQUELIER, Université de Picardie Jules Verne, Amiens, France
- 10:20 **INV3** *Mechanistic insights into fast ion conduction in solid electrolyte and cathode materials*
Saiful ISLAM, University of Bath, UK

10:40 COFFEE BREAK

SESSION 2	Industrial applications	Chairpersons : Jean-Marie Tarascon and Jeffrey Chamberlain
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Keynote Lecture

11:05 **KEY2** *Interfacial engineering for advanced lithium-ion batteries*
Zonghai CHEN, Argonne National Laboratory, USA



Invited Talks

- 11:30 INV4 *Getting beyond LIB for automotive – commercialization realities*
Renata ARSENAULT, Ford Research and Innovation Center, USA
- 11:50 INV5 *Sustainability of battery segment and recycling of strategic metals*
Farouk TEDJAR, RECUPYL SAS and LABEX CEMAM, St Martin d'Herès, France
- 12:10 INV6 *Battery materials : industrial evolution for lithium-ion and post lithium-ion technologies*
Anne DE GUIBERT, SAFT, Bordeaux, France

12:30 **LUNCH**

SESSION 3	Tribute to Michel Armand I	Chairperson : Dominique Guyomard
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Plenary Lecture

- 14:20 PLE2 *Energy storage and the metal electrode*
Michel ARMAND, CIC Energigune, Alava, Spain & Université de Picardie Jules Verne, Amiens, France & Deakin University, Victoria, Australia

Keynote Lectures

- 14:50 KEY3 *The lithium metal polymer battery and its applications*
Marc DESCHAMPS, BlueSolutions, Quimper, France
- 15:15 KEY4 *Tribute to Michel Armand : From Solid Polymer Electrolyte to Carbon Nanopainting LiFePO₄*
Karim ZAGHIB, Institut de Recherche d'Hydro-Québec, Canada

15:40 **COFFEE BREAK – POSTER SESSION**

SESSION 4	Tribute to Michel Armand II	Chairperson : Karim Zaghib
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Keynote Lectures

- 16:40 KEY5 *Recent progresses on lithium salts of perfluorinated sulfonimide anions for rechargeable Li and Li-ion battery*
Zhi-Bin ZHOU, Huazhong University of Science and Technology, Wuhan, China
- 17:05 KEY6 *Electrolytes enabling Li and Na metal devices - from polymer electrolytes to ionic liquids*
Maria FORSYTH, Monash University, Victoria, Australia

Invited Talk

- 17:30 INV7 *Single-ion block copolymer electrolytes*
Renaud BOUCHET, Grenoble Alpes Université, France
- 17:50 *Special Moment*

18:30 **Group Photo**

19:00 **DINNER in honor of Michel ARMAND
(Nantes Events Center)**



Tuesday 22

07:30

Welcome Desk

SESSION 5	<i>In-situ and operando characterization</i>	Chairpersons : Michel Armand and Mark Obrovac
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Plenary Lecture

08:30 PLE3 *Novel EQCM-D-based methodology for in-situ gravimetric, viscoelastic and hydrodynamic probing of battery and supercapacitor electrodes*
Doron AURBACH, Bar-Ilan University, Ramat-Gan, Israel

Keynote Lecture

09:00 KEY7 *From bulk to near-surface investigations of $\text{LiNi}_{0.5}\text{Mn}_{1.5}\text{O}_4$ using operando techniques (neutron/X-ray/Raman/OEMS)*
Petr NOVAK, Paul Scherrer Institut, Villigen, Switzerland

Invited Talks

09:25 INV8 *3D microstructure of battery electrodes analyzed by FIB-SEM and in operando X-Ray tomography*
Eric MAIRE, INSA-Lyon, Villeurbanne

09:45 INV9 *In operando monitoring of the pore dynamics in ordered mesoporous electrode materials by small angle X-ray scattering*
Won-Sub YOON, Sungkyunkwan University, Suwon, Republic of Korea

10:05 COFFEE BREAK

SESSION 6	<i>Silicon anodes</i>	Chairpersons : Atsuo Yamada and Anne de Guibert
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Keynote Lecture

10:30 KEY8 *Nanostructured Si-based negative electrodes of Li-ion batteries*
Mark OBROVAC, Dalhousie University, Halifax, Canada

Invited Talks

10:55 INV10 *Interface optimization principles of Si anode for Li-ion batteries*
Judith ALVARADO, University of California San Diego, La Jolla, USA

11:15 INV11 *Analytical multi-probe study of the SEI on silicon based electrode in full cell configuration*
Pascale BAYLE-GUILLEMAUD, CEA, INAC, Grenoble

11:35 INV12 *Silicon-based LIB anode active materials - an industry perspective*
Juergen PFEIFFER, Wacker Chemie AG, Burghausen, Germany

11:55 LUNCH



SESSION 7	New materials, electrolytes and additives	Chairpersons : Martin Winter and Shinishi Komaba
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Plenary Lecture – Award

13:45 Introduction to the Award

13:55 Research Award	PLE4	Metastable intermediate in Li_xFePO_4 : structure, electrochromism, and transport properties Atsuo YAMADA , University of Tokyo, Tokyo, Japan
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Keynote Lecture

14:25 KEY9	Electrolyte additives for lithium- and manganese-rich layered cathode materials : an XPS study Rémi DEDRYVERE , University of Pau, France
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Invited Talks

- 14:50 INV13 *Highly concentrated electrolytes for 5V cathodes*
Minoru INABA, Doshisha University, Kyoto, Japan
- 15:10 INV14 *The electrochemical lithium insertion properties of a new vanadium oxyfluoride with ReO_3 -type structure*
Flaviano GARCIA-ALVARADO, Universidad San Pablo, Madrid, Spain

15:30 COFFEE BREAK

SESSION 8	Beyond lithium-ion batteries I	Chairpersons : Petr Novak and Remi Dedryvere
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Keynote Lecture

15:55 KEY10	Layered oxides for Na-ion batteries Shinishi KOMABA , Tokyo Univ. of Science, Tokyo, Japan & Kyoto Univ., Kyoto, Japan
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Invited Talks

- 16:20 INV15 *New insights into vanadium fluorophosphates of first interest developed for Li and Na-ion batteries*
Laurence CROGUENNEC, Université de Bordeaux, France
- 16:40 INV16 *Non-aqueous K-ion batteries*
Stefano PASSERINI, Helmholtz Institute Ulm, & Karlsruhe Institute of Technology, Germany
- 17:00 INV17 *In situ Fe K-edge XAS study during cycling of $\text{Li}_2\text{FeSiO}_4$*
Erik KELDER, Delft University of Technology, The Netherlands

17:20 POSTER SESSION 18:00 Light DINNER



Wednesday 23

07:30

Welcome Desk

SESSION 9	<i>Beyond lithium-ion batteries II</i>	Chairpersons : Ryoji Kanno and Teofilo Rojo
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Plenary Lecture

08:30 PLE5 *The rechargeable aprotic Li-O₂ battery*
Peter BRUCE, University of Oxford, UK

Keynote Lecture

09:00 KEY11 *Rechargeable magnesium batteries : achievements and challenges*
Robert DOMINKO, National institute of chemistry, Ljubljana, Slovenia

Invited Talks

09:25 INV18 *Revisit multivalent battery system*

Fanny BARDE, Toyota Motor Europe (TME), Zaventem, Belgium

09:45 INV19 *Extending stability of cathode electrode materials in high-voltage region for Li/Na-ion batteries*
Yong YANG, Xiamen University, China

10:05 COFFEE BREAK

SESSION 10	<i>Sodium batteries</i>	Chairpersons : Peter Bruce and Claude Delmas
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Keynote Lecture

10:30 KEY12 *Advanced materials for electrodes in Na-ion batteries*
Teofilo ROJO, University of the Basque Country, Alava & CIC energiGUNE, Miñano, Spain

Invited Talks

10:55 INV20 *Titanate systems for sodium storage*

Palani BALAYA, National University of Singapore, Singapore

11:15 INV21 *Recent findings in sodium battery electrode material testing*

Rosa PALACIN, Institut de Ciència de Materials de Barcelona, Spain

11:35 INV22 *Crystal water for advanced sodium and magnesium rechargeable batteries*

Jang Wook CHOI, Korea Advanced Institute of Science and Technology, Daejeon, Republic of Korea

11:55 LUNCH



SESSION 11	Safety	Chairpersons : Nae-Li Wu and Christian Masquelier
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Plenary Lecture

13:45 PLE6 *Electrolytes : A key component for improved safety and longer life of lithium ion batteries*
Martin WINTER, University of Münster & Helmholtz Institute Münster, Germany

Keynote Lecture

14:15 KEY13 *Thermal energy balance, internal short and thermal runaway*
Bor Yann LIAW, University of Hawaii at Manoa, Honolulu, USA

Invited Talks

14:40 INV23 *Hybrid organic-inorganic gel polymer electrolytes for lithium batteries*
Ricardo PIERI, Solvay Specialty Polymers, Bollate, Italy

15:00 INV24 *Li-rich Li_5FeO_4 (LFO) cathode material as pre-lithiation additive for enabling high-energy Si-C/NMC batteries*
Christopher JOHNSON, Argonne National Laboratory, USA

15:20 INV25 *Overcharge study in $\text{Li}_4\text{Ti}_5\text{O}_{12}$ based lithium-ion pouch cell*
Matthieu DUBARRY, University of Hawaii at Manoa, Honolulu, USA

15:40 COFFEE BREAK – POSTER SESSION

SESSION 12	Lithium sulfur batteries	Chairpersons : Robert Dominko and Yong Yang
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Keynote Lecture

16:40 KEY14 *High-rate capability enabled by polysulfide chemistry for Li-S batteries*
Nae-Lih WU, National Taiwan University, Taipei, Taiwan

Invited Talks

17:05 INV26 *Bypassing methods of polysulfides dissolution in improved lithium sulfur batteries*
Ilias BELHAROUAK, Hamad Bin Khalifa University, Doha, Qatar

17:25 INV27 *Advances in Na, Li-S and Zn battery systems*
Jun LIU, Pacific Northwest national Laboratory, Richland, USA

17:45 INV28 *How do you solve a problem like lithium polysulfides ?*
Adam BEST, CSIRO Manufacturing, Victoria, Australia

**18:30 BANQUET – IBA Award Ceremony
(La Pigossière Castel)**



Thursday 24

SESSION 13	Award Session	Chairpersons : Bor-Yann Liaw and Rosa Palacin
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Keynote Lectures - Awards

08:30 KEY15 *Origins of high capacity manganese rich cathodes degradation*
Research Award **Robert KOSTECKI**, Lawrence Berkeley National Laboratory, USA

08:55 KEY16 *Microstructural change of Li(NiCo)O₂ based materials of Li ion batteries*
Technology Award **Yoshio UKYO**, SACL Kyoto University, Japan

09:20 KEY17 *Lithium- and manganese-rich cathodes : a deep dive and a look forward*
Early Career Award **Jason CROY**, Argonne National Laboratory, USA

Invited Talk

09:45 INV29 *Composite cathodes as a substitute cathode*
Shigetō OKADA, Kyushu University, Fukuoka, Japan

10:05 COFFEE BREAK

SESSION 14	Sodium materials and synthesis	Chairpersons : Zempachi Ogumi and Robert Kostecki
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Keynote Lecture

10:30 KEY18 *Understanding of the mechanism of sodiation of p-block element based electrodes*
Laure MONCONDUIT, Université Montpellier 2, France

Invited Talks

10:55 INV30 *Alluaudite frameworks for sodium batteries*
Prabeer BARPANDA, Indian Institute of Science, Bangalore, India

11:15 INV31 *Simulated synthesis and characterisation of LiMn-O nanostructures*
Phuti NGOEPE, University of Limpopo, Sovenga, South Africa

11:35 INV32 *Mechanical activation and mechanochemical reactions : fundamentals and application for lithium-ion batteries*
Nina KOSOVA, Siberian Branch of the Russian Academy of Sciences, Novosibirsk, Russia

11:55 LUNCH



SESSION 15	Battery design, reaction mechanism, additives and metal anodes	Chairpersons : Clare Grey and Laure Monconduit
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Plenary Lecture

13:45 PLE7 *Re-thinking Li-ion battery design and manufacturing*
Yet-Ming CHIANG, Massachusetts Institute of Technology & 24M Technologies, Inc.
 Cambridge, USA

Keynote Lecture

14:15 KEY19 *Reaction distribution in composite electrodes of LIB*
Zempachi OGUMI, Kyoto University, Japan

Invited Talks

14:40 INV33 *Effects of additives on electrochemical performance of anode materials in PC-based electrolytes*
Bing Joe HWANG, National Taiwan University of Science and Technology, Taipei, & National Synchrotron Radiation Research Center, Hsinchu, Taiwan

15:00 INV34 *Electrodeposition and development of metal anodes*
Alexandre PONROUCH, Institut de Ciència de Materials de Barcelona, Spain

15:20 INV35 *Pushing the limit of operando techniques to probe battery materials*
Claire VILLEVEILLE, Paul Scherrer Institut, Villigen, Switzerland

15:40 COFFEE BREAK – POSTER SESSION

SESSION 16	New approaches and new materials	Chairpersons : Yet-Ming Chiang and Yoshio Ukyo
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Keynote Lecture

16:05 KEY20 *Lithium rich layered cathode materials - High pressure and epitaxial film syntheses*
Ryoji KANNO, Tokyo Institute of Technology, Yokohama, Japan

Invited Talks

16:30 INV36 *Improved cathode materials for next generation lithium-ion batteries*
Margret WOHLFAHRT-MEHRENS, Zentrum für Sonnenenergie- und Wasserstoff-Forschung, Ulm, Germany

16:50 INV37 *Advanced concentration gradient cathode material with two-slope for high-energy and safe lithium batteries*
Yang-Kook SUN, Hanyang University, Seoul, Korea

17:10 INV38 *Polymer electrode material for energy storage*
Hui ZHAN, Wuhan University, China

17:30 INV39 *Development of non polymeric positive electrode materials for rechargeable organic batteries*
Philippe POIZOT, Université de Nantes, France



Friday 25

SESSION 17	Beyond lithium-ion batteries III	Chairpersons : Kristina Edstrom and Brett Lucht
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Plenary Lecture

08:30 PLE8 *NMR beyond Li-ion : Na, Mg, Li-air batteries*
Clare GREY, University of Cambridge, UK

Keynote Lecture

09:00 KEY21 *Novel battery concepts - same old electrolytes ?*
Patrick JOHANSSON, Chalmers University of Technology & ALISTORE-ERI Amiens, France

Invited Talks

09:25 INV40 *Na-air batteries : understanding of mechanisms and rechargeability*
Andy SUN, University of Western Ontario, London, Canada

09:45 INV41 *Beyond Li-ion : recent developments and deeper understanding of the lithium/sulfur rechargeable battery technology*
Céline BARCHASZ, French Atomic Energy and Alternative Energies Agency (CEA), Grenoble, France

10:05 INV42 *High energy density Li-S batteries for aerospace applications*
Ratnakumar BUGGA, California Institute of Technology, Pasadena, USA

10:25 COFFEE BREAK

SESSION 18	Electrodes, electrolytes and interfaces	Chairpersons : Ratnakumar Bugga and Patrik Johansson
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Keynote Lecture

10:50 KEY22 *Development of free standing electrodes for Li-ion anode storage*
Kristina EDSTROM, Uppsala University, Sweden

Invited Talks

11:15 INV43 *Development of novel electrolyte additives via ex-situ analysis of electrodes*
Brett LUCHT, University of Rhode Island, USA

11:35 INV44 *New insights into SEI formation on graphite in alkylcarbonates and dinitriles based solvents*
Daniel LEMORDANT, Université François Rabelais, Tours, France

11:55 INV45 *New insights into the electrode/electrolyte interface on positive electrodes in Li-ion batteries*
Magali GAUTHIER, Massachusetts Institute of Technology, Cambridge, USA

12:15

Closing Remarks

12:35 LUNCH



Program of poster presentations



List of Posters

Monday 21 – Session 1

- POS1 *Li-ion reaction mechanisms in silicon nanotubes*
Maria Alfredsson, University of Kent, UK
- POS4 *V₂O₅ Nanoribbons from reverse micelles and organic oxidants for battery insertion electrodes*
Jose Manuel Amarilla, CSIC, Spain
- POS7 *Influence of dopants on the stabilisation of high energy NCM Li_x(Ni_aCo_bMn_c)O₂*
Juliette Billaud, Paul Scherrer Institut, Villigen, Switzerland
- POS10 *Probing the degradation mechanisms of silicon anodes in Li-ion batteries by STEM-EELS mapping*
Maxime Boniface, CEA-INAC, France
- POS13 *Coupling surface imaging, FIB, and spectroscopies to understand silicon anodes lithiation and ageing mechanisms*
Arnaud Bordes, Univ. et CEA Grenoble, France
- POS16 *Coated current collector for Lithium-ion batteries*
Christophe Busson, IMN Nantes, France
- POS19 *Grafted carbon-silicon nanocomposites for Li-ion batteries*
Olivier Crosnier, IMN Nantes et RS2E, France
- POS22 *Protection of 5V cathode materials with atomic layer deposition of different oxides*
Philippe Dumaz, LEPMI et SIMaP, Saint-Martin d'Hères, France
- POS25 *Relaxation effects of the negative electrode TiSnSb using ¹¹⁹Sn Mossbauer and ⁷Li MAS NMR spectroscopies*
Nicolas Dupré, IMN Nantes and ALISTORE-ERI, France
- POS28 *New polymorphs of A_xMPO₄F fluoride phosphates as cathode materials for rechargeable batteries*
Stanislav Fedotov, Lomonosov Moscow State University and Skolkovo Institute of Science and Technology, Moscow, Russia
- POS31 *Surface investigation of amorphous Si thin films cycled as anodes for Li-ion batteries*
Giulio Ferraresi, Paul Scherrer Institut, Villigen, Switzerland
- POS34 *Core shell amorphous silicon-carbon nanoparticles synthesis by double stage laser pyrolysis, application to anode material*
Cédric Haon, CEA Grenoble, France



- POS37 *Rapid and facile microwave synthesis of high performing nanostructured SnO₂/C composite anode materials for Li-ion battery*
Mesfin Kebede, Council for Scientific and Industrial Research, Pretoria, South Africa
- POS40 *Alternative Binders for Lithium Iron Silicate (Li₂FeSiO₄) cathodes*
Tayfun Kocak, Anadolu University, Turkey
- POS43 *Towards Improved Cycling Performances of Silicon Electrodes after Electrochemical Pre-formatting*
Florent Lepoivre, Collège de France and Sorbonne Universités, Paris, France
- POS46 *Multi-scale characterization of electronic and ionic limitations to power performance of composite electrodes*
Bernard Lestriez, IMN Nantes, France
- POS49 *Optimization of silicon-based composite electrodes*
Driss Mazouzi, IMN Nantes, France
- POS52 *Honeycomb ordering to trigger oxygen redox chemistry in layered cathode materials*
Benoit Mortemard de Boisse, University of Tokyo and Kyoto University, Japan
- POS55 *Irreversible structural transformation of Li-rich NMC electrodes during cycling: the role of manganese*
Guy Ouvrard, IMN Nantes
- POS58 *Transition metal dissolution in the Li_{1+x}(Ni_aCo_bMn_{1-a-b})_{1-x}O₂ / Graphite full-cell*
Hai-Jung Peng, Paul Scherrer Institut, Villigen, Switzerland and BASF SE, Ludwigshafen, Germany
- POS61 *Homo- and heterovalent doping of nanostructured LiCoPO₄*
Olga Podgornova, Russian Academy of Sciences, Novosibirsk, Russia
- POS64 *An active Li-Mn-O compound for high energy density Li-ion batteries*
Valérie Pralong, CRISMAT Caen, France
- POS67 *Fe₃O₄-containing multilayer graphene for enhanced Lithium storage capability*
Rinaldo Raccichini, HIU Ulm and KIT Karlsruhe and Univ. of Muenster, Germany
- POS70 *Faults, an accessible program for refining powder diffraction patterns of layered structures*
Marine Reynaud, CIC Energigune, Miñano, Spain
- POS73 *NMC Positive electrode materials with metal-site vacancies for Lithium-ion batteries*
Ramesh Shunmugasundaram, Dalhousie University, Halifax, Canada



- POS76 *Study of the morphological evolution of Si-based electrodes by means of in-situ X-ray tomography*
Victor Vanpeene, INRS-EMT, Varennes, Canada and MATEIS INSA Lyon, France
- POS79 *Small change — great effect: Steep increase of Li ion dynamics in $Li_{4+x}Ti_5O_{12}$ at the early stages of chemical Li insertion ($x = 0.1, x = 0.3$)*
Martin Wilkening, Graz University of Technology, Graz, Austria

Tuesday 22 – Session 2

- POS2 *Single-phase Na^+/Li^+ co-insertion mechanism within olivine $FePO_4$*
Renaud Bouchet, Université Grenoble Alpes and LEPMI, France
- POS5 *Polysulphides confined! New design of the separator for better Li-S cell performance*
Joanna Conder, Paul Scherrer Institut, Villigen, Switzerland
- POS8 *Improved Calculation of Li and Na Intercalation Properties in TiO_2 Polymorphs using the Screened Exchange Functional*
James A. Dawson, University of Cambridge, UK
- POS11 *Sol-gel routes to antimony electrodes for lithium and sodium batteries*
Nicholas Drewett, University of Liverpool, UK
- POS14 *Spray-drying synthesis of $Na_3V_2(PO_4)_2F_3$ as cathode material in hybrid-ion batteries*
Nicolas Eshraghi, University of Liège, Belgium
- POS17 *Electrode Materials for Organic Batteries: can Modelling Investigations take part to the Challenge ?*
Christine Frayret, LRCS, Université de Picardie, Amiens, France
- POS20 *Electrochemical performance of micro-sized Sn for Na-ion Battery*
Mika Fukunishi, Tokyo University of Science, Japan
- POS23 *Organic electrode materials, a new opportunity for low cost and sustainable Lithium battery ?*
Thibaut Gutel, CEA LITEN Grenoble, France
- POS26 *Facile synthesis of Tin selenide (SnSe) nanoparticles on reduced graphene oxide (rGO) as promising anodes for Lithium-ion and Sodium-ion Batteries*
Zhi Xiang Huang, Singapore University of Technology and Design, Singapore
- POS29 *Properties of a lithium-doped state of polyaniline as an active material for lithium batteries*
Pablo Jimenez-Manero, IMN Nantes, France



- POS32 *Mixed Layered Cathode Material with Superior Performance for Application in Na-ion Batteries*
Marlou Keller, HIU Ulm and KIT Karlsruhe, Germany
- POS35 *Structural, Electrochemical and Magnetic Properties of a Novel $KFeSO_4F$ Polymorph*
Laura Lander, Collège de France and RS2E, Paris, France
- POS38 *Rechargeable Lithium metal polymer (LMP) organic batteries using a commercial polymer electrolyte*
Margaud Lécuyer, Blue Solutions, Quimper, France
- POS41 *A $Li_2MnSiO_4@rGO$ composite with enhanced electrochemical performance as cathode material for lithium-ion batteries*
Shuangke Liu, National University of Defense Technology, Changsha, China
- POS44 *Vanadium oxide aerogel - A flexible material for Li- and Na-batteries*
Arianna Moretti, HIU Ulm and KIT Karlsruhe, Germany
- POS47 *Disordered carbonaceous materials as high performance anode for Na-Ion Battery*
Brahim Orayech, CIC EnergiGUNE, Miñano, Spain
- POS50 *Redox behaviors of P and N type compounds as negative electrode materials for sodium aqueous batteries*
Sofia Perticarari, IMN Nantes, France
- POS53 *Dilithium benzenedipropiolate: a super-lithiated organic electrode material*
Steven Renault, Uppsala University, Sweden
- POS56 *Structure and electrochemistry of $Na_{1+y}VPO_4F_{1+y}$ ($0 \leq y \leq 0.5$) for Na- and Li-ion batteries*
Daria Rezepova, Russian Academy of Sciences, Novosibirsk, Russia
- POS59 *Li_2S particle size influence on the first charge working mechanism of Li_2S -based Li-ion batteries*
Alice Robba, Université Grenoble Alpes and CEA LITEN, France
- POS62 *Lithium iron methylene diphosphonate, a new organic-inorganic hybrid material for Li-ion batteries*
Sébastien Sallard, Paul Scherrer Institut, Villigen, Switzerland
- POS65 *New insights into the kinetics of Na insertion and extraction into the $FePO_4/NaFePO_4$ system*
Damien Saurel, CIC Energigune, Miñano, Spain
- POS68 *Exploration of new borate based cathode materials for lithium and sodium ion batteries*
Florian Strauss, Collège de France and ALISTORE, France / NIC Ljubljana, Slovenia
- POS71 *Sodium pyrophosphate cathode material $Na_2FeP_2O_7$ for Na- and Li-ion batteries*
Anna Tsapina, Novosibirsk State University and ISSCM, Russia



- POS74 *Understanding the mechanisms limiting the conversion reaction of iron oxide nanostructures in Li- and Na-ion batteries*
Mario Valvo, Uppsala University, Sweden
- POS77 *Microwave synthesis of nanostructured electrodes for Li-ion batteries*
Josefa Vidal Laveda, University of Glasgow, UK
- POS80 *MSbXSY families used as negative electrode for X+-ion batteries (X=Li⁺, Na⁺)*
Claire Villeveille, Paul Scherrer Institut, Villigen, Switzerland
- POS82 *Lithium/electrolyte interface in Li/S₈ batteries conditions: passivation and dendritic growth*
Valentin Vinci, Université Grenoble Alpes and LEPMI, France
- POS84 *Fluorinated reduced graphene oxide and its application in Li-S batteries*
Alen Vizintin, NIC Ljubljana, Slovenia
- POS86 *Nontopotactic Conversion Reaction in Highly Reversible Sodium Storage of Ultrathin Co₉Se₈/r-GO Nanosheets*
Xianfen Wang, Singapore University of Technology and Design, Singapore

Wednesday 23 – Session 3

- POS3 *Bifunctional Electrocatalytic Effect for Oxygen Reduction and Evolution in Li-O₂ Batteries : RRDE and DEMS Insights*
Hatem M.A. Amin, University of Bonn, Germany
- POS6 *Quantification of lithium plating in commercial Li-ion batteries via in situ techniques*
David Ansean, University of Oviedo, Gijón, Spain
- POS9 *3D Microbatteries for Swarm Sensing Application*
Adam Best, CSIRO Manufacturing, Clayton, Australia
- POS12 *Separating bulk from grain boundary Li ion conductivity in the sol-gel prepared solid electrolyte Li_{1.5}Al_{0.5}Ti_{1.5}(PO₄)₃*
Stefan Breuer, Graz University of Technology, Austria
- POS15 *Facile Synthesis of Pd₃Co Bimetallic Hollow Nanospheres and Their Application for Rechargeable Li-O₂ Batteries*
Sung Man Cho, Korea University, Seoul, Republic of Korea
- POS18 *Ink jet printing and printable electrolytes for all-solid-state lithium microbatteries*
Pierre-Emmanuel Delannoy, IMN Nantes, France



- POS21 *EV cell degradation under electric utility grid operations: Impact of calendar aging & vehicle to grid strategies*
Matthieu Dubarry, University of Hawai'i at Mānoa, Honolulu, USA
- POS24 *Laboratory testing of LTO based cells for BESS applications*
Matthieu Dubarry, University of Hawai'i at Mānoa, Honolulu, USA
- POS27 *In-depth surface and reactivity investigation of Li-based electrolytes*
Gebrekidan Eshetu, HIU Ulm and KIT Karlsruhe, Germany
- POS30 *Synthesis of new single-ion copolymer electrolytes for Lithium-metal batteries*
Adèle Ferrand, Aix-Marseille Université, France
- POS33 *Hierarchically Structured Materials for Supercapacitors and Batteries*
Michael Fischer, Adolphe Merkle Institut, Fribourg, Switzerland
- POS36 *Polymer electrolytes based on sodium poly [4-styrenesulfonyl (trifluoromethylsulfonyl) imide] for sodium ion batteries*
Oihane Garcia-Calvo, CIC EnergiGUNE, Miñano, Spain
- POS39 *Interface studies of electrodes and polymers electrolyte based on Li-conductive imidazole salts*
Juan Luis Gómez-Cámer, CIC EnergiGUNE, Miñano, Spain
- POS42 *Fabrication of flexible an all solid state thin film lithium battery with high volumetric energy density and safety*
Tien-Hsiang Hsueh, Institute of Nuclear Energy Research, Taoyuan, Taiwan
- POS45 *Interfacial stability of Ni-rich layered oxide cathodes*
Aude Hubaud, Argonne National Laboratory, USA
- POS48 *Fabrication of the random mixed Li-Cu structure to prevent dendrite growth for lithium metal battery*
Sun Woo Hwang, Korea University, Republic of Korea
- POS51 *Synthesis and characterization of new single ion electrolytes for lithium metal polymer batteries*
Adrien Lassagne, Université Grenoble Alpes and LEPMI, France
- POS54 *Nanoscale PEEM spectroscopy combined with XPS to elucidate the surface reaction mechanism of cycled electrodes*
Daniela Lanza, Paul Scherrer Institute, Villigen, Switzerland



- POS57 *A Systematic Study of Some Promising Electrolyte Additives in $\text{Li}[\text{Ni}_{1/3}\text{Mn}_{1/3}\text{Co}_{1/3}]\text{O}_2/\text{Graphite}$, $\text{Li}[\text{Ni}_{0.5}\text{Mn}_{0.3}\text{Co}_{0.2}]/\text{Graphite}$ and $\text{Li}[\text{Ni}_{0.6}\text{Mn}_{0.2}\text{Co}_{0.2}]/\text{Graphite}$ Pouch Cells*
Lin Ma, Dalhousie University, Halifax, Canada
- POS60 *Imidazolium-based mono and dicationic ionic liquid sodium electrolytes*
Enrique Morales Bergas, CSIC Madrid, Spain
- POS63 *Increase in the ionic conductivity of LiPON-type thin films electrolyte for lithium microbatteries*
Antoine Munier, CEA Grenoble, France
- POS66 *SEI characterization and failure mechanism of SI electrodes in full Li-ion cells*
Lucille Quazuguel, IMN Nantes, France
- POS69 *Novel electrolytes based on "Hindered glymes" - a strategy to prevent graphite exfoliation in Lithium secondary batteries*
Devaraj Shanmukaraj, CIC Energigune, Miñano, Spain
- POS72 *Quantifying the "electrolyte decomposition reaction" contribution to falsely high observed capacities in $\text{Li}_2\text{FeSiO}_4$ using Mossbauer spectroscopy*
Josh Thomas, Uppsala University, Sweden
- POS75 *Ageing studies on commercial 18650 batteries used in Tesla model S electric vehicles*
Marlena Uitz, Graz University of Technology, Austria
- POS78 *Mechanism identification in Lithium-Oxygen batteries by impedance spectroscopy*
Nuria Vicente, INAM, University Jaume I, Castellón, Spain
- POS81 *Novel surface modification of graphite with excellent performance for Lithium ion battery*
Yu-Ting Weng, National Taiwan University, Taipei, Taiwan
- POS83 *Electrolytes for High Voltage NMC Li-ion Cells*
Jian Xia, Dalhousie University, Halifax, Canada
- POS85 *Understanding the surface modification mechanism of electrolyte additives on silicon anodes in Li-ion batteries*
Chao Xu, Uppsala University, Sweden
- POS87 *Electrochemical analysis of irreversible behavior in silicon electrode for lithium ion battery*
Jee Ho Yom, Korea University, Seoul, Republic of Korea
- POS88 *Development of Organic Ionic Plastic Crystal-Polymer Nanofibre Composites as Solid State Electrolytes*
Yundong Zhou, Deakin University, Victoria, Australia

SUNDAY 03/20	MONDAY 03/21	TUESDAY 03/22	WEDNESDAY 03/23	THURSDAY 03/24	FRIDAY 03/25
18:00 – 20:30 Welcome Party and Welcome Desk	07:30 Welcome Desk	07:30 Welcome Desk	07:30 Welcome Desk		
	08:15 Welcome address				
	08:45 - Session 1	08:30 - Session 5	08:30 - Session 9	08:30 - Session 13	08:30 - Session 17
	PLE1 J.M. TARASCON KEY1 J. CHAMBERLAIN INV1 C. DELMAS INV2 C. MASQUELIER INV3 S. ISLAM	PLE3 D. AURBACH KEY7 P. NOVAK INV8 E. MAIRE INV9 W.S. YOON	PLE5 P. BRUCE KEY11 R. DOMINKO INV18 F. BARDE INV19 Y. YANG	KEY15 R. KOSTECKI KEY16 Y. UKYO KEY17 J. CROY INV29 S. OKADA	PLE8 C. GREY KEY21 P. JOHANSSON INV40 A. SUN INV41 C. BARCHASZ INV42 R. BUGGA
	10:40 Coffee break	10:05 Coffee break	10:05 Coffee break	10:05 Coffee break	10:25 Coffee break
	11:05 - Session 2	10:30 - Session 6	10:30 - Session 10	10:30 - Session 14	10:50 - Session 18
	KEY2 Z. CHEN INV4 R. ARSENAULT INV5 F. TEDJAR INV6 A. DE GUIBERT	KEY8 M. OBROVAC INV10 J. ALVARADO INV11 P. BAYLE-GUILLEMAUD INV12 J. PFEIFFER	KEY12 T. ROJO INV20 P. BALAYA INV21 R. PALACIN INV22 J.W. CHOI	KEY18 L. MONCONDUIT INV30 P. BARPANDA INV31 P. NGOEPE INV32 N. KOSOVA	KEY22 K. EDSTROM INV43 B. LUCHT INV44 D. LEMORDANT INV45 M. GAUTHIER
					12:15 Closing Remarks
	12:30 Lunch	11:55 Lunch	11:55 Lunch	11:55 Lunch	12:35 Lunch
	14:20 - Session 3	13:45 Introduction 13:55 - Session 7	13:45 - Session 11	13:45 - Session 15	PLENARY (25' + 5') KEYNOTE (20' + 5') INVITED (15' + 5') TRIBUTE TO M. ARMAND AWARDS SPEAKERS
	PLE2 M. ARMAND KEY3 M. DESCHAMPS KEY4 K. ZAGHIB	PLE4 A. YAMADA KEY9 R. DEDRYVERE INV13 M. INABA INV14 F. GARCIA-ALVARADO	PLE6 M. WINTER KEY13 B.Y. LIAW INV23 R. PIERI INV24 C. JOHNSON INV25 M. DUBARRY	PLE7 Y.M. CHIANG KEY19 Z. OGUMI INV33 B.J. HWANG INV34 A. PONROUCH INV35 C. VILLEVIEILLE	
	15:40 Coffee break & Poster Session	15:30 Coffee break	15:40 Coffee break & Poster Session	15:40 Coffee break & Poster Session	
	16:40 - Session 4	15:55 - Session 8	16:40 - Session 12	16:05 - Session 16	
	KEY5 Z.B. ZHOU KEY6 M. FORSYTH INV7 R. BOUCHET	KEY10 S. KOMABA INV15 L. CROGUENNEC INV16 S. PASSERINI INV17 E. KELDER	KEY14 N.L. WU INV26 I. BELHAROUAK INV27 J. LIU INV28 A. BEST	KEY20 R. KANNO INV36 M. WOHLFAHRT-MEHRENS INV37 Y.K. SUN INV38 H. ZHAN INV39 P. POIZOT	
	17:50 Special Moment				
18:30 Group Photo	17:20 Poster Session				
19:00 Dinner in honor of M. ARMAND	18:10 Light Dinner on poster site	18:30 Banquet IBA Award Ceremony			

