



X-RAYS AND NEUTRONS IN ENERGY-RELATED MATERIALS SCIENCE

FEBRUARY 7-8-9, 2011 - VENUE: ESRF AUDITORIUM

MONDAY FEBRUARY 7, 2011

14:00-14:40 Welcome and Introduction by **W.G. Stirling**

Session 1: “Batteries” – Chair: J. Rodriguez-Carvajal

14:40-15:15 Structure, defects and magnetism in the Polyanion-type compounds used for Li-ion batteries
J.M. Tarascon (LRCS Amiens, France)

15:15-15:35 X-rays and neutrons as powerful tools to characterize structures and electrochemical mechanisms in positive electrode materials for Li-ion batteries
L. Croguennec (ICMCB Bordeaux, France)

15:35-15:55 *in operando* neutron scattering studies on commercial Li-ion batteries
H. Ehrenberg (Karlsruher Institute of Technology (KIT), Germany)

15:55-16:15 Electrochemical and structural characteristic of orthosilicate cathode materials
R. Dominko (National Institute of Chemistry, Ljubljana, Slovenia)

16:15-16:35 *Coffee Break*

Session 2: “Light Materials” – Chair: N. Magnea

16:35-17:10 Friction joining of aerospace materials
P. Withers (University of Manchester, UK)

17:10-17:30 3D characterisation of damage mechanisms in lightweight structural materials using synchrotron X-rays
J.Y. Buffière (Insa Lyon, France)

17:30-17:50 Towards lighter metallic structures for transports: interplay between X-ray characterisation and microstructural modelling for alloy optimisation
F. De Geuser (SIMAP Grenoble, France)

17:50-18:10 Fast tomo/light materials, 3D imaging solidification of aluminium alloys
L. Salvo (Grenoble INP, France)

18:10-20:15 *Wine and cheese*



TUESDAY FEBRUARY 8, 2011 (PARALLEL SESSIONS OF THE USERS MEETING)

Material Science Parallel Session – Chair: C. Maurizio

- 14:00-14:25 Structure and dynamics of complex hydrides
A. Borgschulte (Empa, Switzerland)
- 14:25-14:50 Some examples of *in-situ* diffraction measurements applied to the study of complex solid state hydrogen storage materials
F. Dolci (JRC Institute for Energy, The Netherlands)
- 14:50-15:15 Structural phase transitions in photovoltaic materials: an *in-situ* high temperature synchrotron X-ray diffraction study
S. Schorr (Free University Berlin, Germany)
- 15:15-15:40 High-strength steels for automotive applications studied using high-energy x-ray diffraction.
E. Jimenez-Melero (Delft University of Technology, The Netherlands)

15:40-16:15 *Coffee Break*

XRI Parallel Session – Chair: A. Harrison

- 16:15-16:20 Introduction
J. Baruchel (ESRF Grenoble, France)
- 16:20-16:45 X-ray Synchrotron imaging characterisation of the solidification of materials devoted to energy saving issue. Photovoltaic silicon and metallic materials for transport applications
N. Manginck-Noel (IM2NP Marseille, France)
- 16:45-17:10 Diffraction and 3D imaging of low-enriched nuclear fuels
H. Palanchar (CEA Cadarache, France)
- 17:10-17:35 SR tomography on porous tungsten for nuclear fusion reactors
C. Linsmeier (MPI München, Germany)
- 17:35-18:00 Characterization of structural rock properties changes due to CO₂ rich-brine injection by X-ray microtomography
L. Luquot (University of Montpellier, France)

18:00-19:50 *Joint Poster Session with Users' Meeting / Cocktail*

20:00 *Users' Meeting Dinner - Young Scientist and Best Poster awards*



WEDNESDAY FEBRUARY 9, 2011

Session 3: “Hydrogen Storage/Fuel Cells” – Chair: S. Perez

- 14:00-14:40 X-ray synchrotron and neutron diffraction investigations of hydrogen storage materials
Y. Brandt Andersson (Uppsala University, Sweden)
- 14.40-15:05 *In situ* neutron experiments for solid state hydrogen storage materials
G. Walker (Nottingham University, UK)
- 15:05-15:30 *In situ* XAS of electrocatalysts for low temperature fuel cells
A.E. Russell (University of Southampton, UK)
- 15:30-15:55 Neutron and X-ray studies of components and *in situ* water management in PEM fuel cells
G. Gebel (CEA Grenoble, France)
- 15:55-16:30 *Coffee Break*

Session 4: “Photovoltaic and lighting materials” – Chair: T. Metzger

- 16:30-17:10 X-ray view on semiconductors and nanostructures in photovoltaics and thermoelectrics
T. Schulli / J. Stangl (ESRF, Grenoble, France and University of Linz, Austria)
- 17.10-17:35 Looking into solar cells with X-ray eyes - impact of metallic precipitates on multicrystalline silicon solar cell behaviour
W. Kwapil (Fraunhofer Institute for Solar Energy Systems, Freiburg, Germany)
- 17:35-18:00 GaN nanowires nucleation and growth *mechanisms*: the input of *in-situ* X-rays diffraction
B. Daudin (CEA Grenoble, France)
- 18:00-18:30 Closing session, concluding remarks by **A. Harrison (ILL, Grenoble, France)**