

Emerging synchrotron techniques for characterization of energy materials and devices

23 – 25 September 2019



Preliminary Programme



Monday, 23rd September – 12:00 → 20:30

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| 12:00 – 14:00 | <i>Registration at the ESRF Central building and lunch at the EPN Campus restaurant</i> | |
| 14:00 – 14:10 | Introduction by the organizers | |
| 14:10 – 14:20 | Introduction by scientific Director, J. Susini | |
| 14:20 – 15:05 | Invited talk New opportunities for the investigation of thermoelectric materials and devices with extremely brilliant high-energy synchrotron radiation. | O. Oeckler |
| 15:05 – 15:30 | Piezoelectricity in centrosymmetric $\text{Sr}_{1-x}\text{Pr}_x\text{TiO}_3$: a diffraction study under electric field | M. Scavini |
| 15:30 – 15:55 | Understanding lithium storage mechanism in nanostructured MnO_2 @CNT hybrid by <i>in-situ</i> synchrotron X-ray scattering study | M. Rana |
| 15:55 – 16:25 | <i>Coffee break</i> | |
| 16:25 – 17:10 | Invited talk Chemical imaging of catalytic materials under process conditions. | A. Beale |
| 17:10 – 17:35 | <i>In situ</i> and <i>operando</i> structural evolution of single metallic nanoparticle model catalysts under ambient pressure reaction conditions | M.-I. Richard |
| 17:35 – 18:00 | Emerging synchrotron techniques for thermodynamic characterization of metastable phases across electrochemical reactions | D. Bessas |
| 18:00 – 20:30 | <i>Poster session and Wine & cheese</i> | |

Tuesday, 24th September – 9:00 → 17:40

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| 9:00 – 9:45 | Invited talk XRD/PDF computed tomography and how to get the best possible <i>operando</i> data from ion batteries. | D. Wragg |
| 9:45 – 10:10 | Analysing <i>operando</i> spectroscopy data in battery studies: a chemometric approach | L. Stieviano |
| 10:10 – 10:35 | Probing inhomogeneous lithiation of graphite electrodes using <i>operando</i> micro X-ray diffraction | S. Tardif |
| 10:35 – 11:00 | <i>Coffee break</i> | |
| 11:00 – 11:45 | Invited talk Understanding the structure-derived function of metal-organic frameworks and their application in separations. | W. L. Queen |
| 11:45 – 12:10 | Studying In_2O_3 catalyst for CO_2 hydrogenation to methanol at work: an <i>operando</i> XAS-XRD study | P. M. Abdala |

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| 12:15 – 14:00 | <i>Lunch</i> | |
| 14:00 – 14:45 | Invited talk Developments in Synchrotron Techniques to Accelerate the Development of Electrochemical Devices | P. Shearing |
| 14:45 – 15:10 | Operando investigation of the lithium/sulfur battery by coupled X-ray absorption tomography and X-ray diffraction computed tomography | C. Barchasz |
| 15:10 – 15:35 | <i>Operando</i> synchrotron X-ray diffraction and Mössbauer spectroscopy of the cathode materials for Li-ion and Na-ion batteries | O. A. Drozhzhin |
| 15:35 – 16:05 | <i>Coffee break</i> | |
| 16:05 – 16:50 | Invited talk High temporal and spatial resolution hard x-ray imaging for <i>in operando</i> study of real world fuel-based engineering systems. | P. Hutchins |
| 16:50 – 17:15 | Characterising evolving solid oxide fuel cell and electrolysis cell components with <i>ex-situ</i> and <i>in-operando</i> X-ray experiments | J. R. Bowen |
| 17:15 – 17:40 | Probing water distribution and ionomer nanostructure in operating Proton Exchange Membrane Fuel Cells thanks to X-Ray synchrotron source | A. Morin |
| | <i>Free time</i> | |
| 19:00 | <i>Transport to town by tram</i> | |
| 19:30 – 22:00 | Workshop dinner in town, at "L'Epicurien", www.lepicurien-grenoble.com | |
| Wednesday, 25rd September – 9:00 → 12:20 | | |
| 9:00 – 9:45 | Invited talk Straining to be Black: On the Metastability of Lead Triiodide Perovskite Thin Film Devices. | J. Steele |
| 9:45 – 10:10 | Quantifying state of charge and Li plating heterogeneities during fast charging of Li-ion cells | D. Finegan |
| 10:10 – 10:35 | Probing the electron density at electrochemical interfaces with <i>in-situ</i> surface resonant X-ray diffraction | Y. Gruender |
| 10:35 – 11:00 | <i>Coffee break</i> | |
| 11:00 – 11:45 | Invited talk Multifunctional metal hydrides for energy applications. | B. C. Hauback |
| 11:45 – 12:10 | X-ray Raman Scattering study of energy storage materials based on metal hydride nanocomposites | P. Ngene |
| 12:10 – 12:20 | Conclusions by the organizers | |
| 12:20 – 14:00 | <i>Lunch and end of the meeting</i> | |