FUNLAYERS Hands-on workshop on synchrotron techniques for research in Spintronics and Energy Storage

Report of Contributions

https://indico.cells.es/e/1484

Contribution ID: **1** Type: **not specified**

XAS and XES as complementary tools: insight in in-situ/operando investigations

Monday, 11 March 2024 12:45 (30 minutes)

Presenter: SIMONELLI, Laura (ALBA Synchrotron)

Contribution ID: **2** Type: **not specified**

Soft X-ray absorption and X-ray magnetic circular dichroism

Monday, 11 March 2024 14:30 (30 minutes)

Presenter: HERRERO, Javier (ALBA Synchrotron)

Contribution ID: **3** Type: **not specified**

Welcome

Monday, 11 March 2024 14:15 (15 minutes)

Presenter: ATTENKOFER, Klaus (ALBA Synchrotron)

Contribution ID: **4** Type: **not specified**

Photo Emission Electron Microscopy (PEEM) and Low Energy Electron Microscopy (LEEM)

Monday, 11 March 2024 15:00 (30 minutes)

Presenter: NIÑO, Miguel Angel (ALBA Synchrotron)

Contribution ID: **5** Type: **not specified**

Ambient Pressure XPS: Technique and Applications

Monday, 11 March 2024 15:30 (30 minutes)

Presenter: PERÉZ-DIESTE, Virginia (ALBA Synchrotron)

Contribution ID: **6** Type: **not specified**

The electrochemical NAP-XPS

Monday, 11 March 2024 16:00 (30 minutes)

Presenter: VELAZCO VÉLEZ, Juan Jesús (ALBA Synchrotron)

Contribution ID: **7** Type: **not specified**

InCaem: Infrastructure for correlative analysis of advanced energy materials

Monday, 11 March 2024 17:00 (30 minutes)

Presenter: ABALLE, Lucia (ALBA Synchrotron)

Contribution ID: **8** Type: **not specified**

Small and Wide Angle X-ray Scattering for (in situ) characterization of nanostructured materials

Monday, 11 March 2024 12:15 (30 minutes)

Presenter: MALFOIS, Marc (ALBA Synchrotron)

Contribution ID: **9** Type: **not specified**

Guided tour to ALBA

Monday, 11 March 2024 17:30 (1h 30m)

Presenter: ABALLE, Lucia (ALBA Synchrotron)

Contribution ID: **10** Type: **not specified**

Group 1: Practicals at BL16-NOTOS

Tuesday, 12 March 2024 09:00 (4h 30m)

Contribution ID: **11** Type: **not specified**

Group 2: Practicals at BL29-BOREAS

Tuesday, 12 March 2024 09:00 (4h 30m)

Contribution ID: **12** Type: **not specified**

Group 3: Practicals at BL20-LOREA

Tuesday, 12 March 2024 09:00 (4h 30m)

Contribution ID: **13** Type: **not specified**

Group 1: Practicals at BL16-NOTOS

Tuesday, 12 March 2024 14:30 (3h 30m)

Contribution ID: **14** Type: **not specified**

Group 2: Practicals at BL29-BOREAS

Tuesday, 12 March 2024 14:30 (3h 30m)

Contribution ID: **15** Type: **not specified**

Group 3: Practicals at BL20-LOREA

Tuesday, 12 March 2024 14:30 (3h 30m)

Contribution ID: **16** Type: **not specified**

Group 1: Practicals at BL29-BOREAS

Wednesday, 13 March 2024 09:00 (4h 30m)

Contribution ID: **17** Type: **not specified**

Group 2: Practicals at BL20-LOREA

Wednesday, 13 March 2024 09:00 (4h 30m)

Contribution ID: **18** Type: **not specified**

Group 3: Practicals at BL16-NOTOS

Wednesday, 13 March 2024 09:00 (4h 30m)

Contribution ID: **19** Type: **not specified**

Group 1: Practicals at BL29-BOREAS

Wednesday, 13 March 2024 14:30 (2h 30m)

Contribution ID: **20** Type: **not specified**

Group 2: Practicals at BL20-LOREA

Wednesday, 13 March 2024 14:30 (2h 30m)

Contribution ID: **21** Type: **not specified**

Group 3: Practicals at BL16-NOTOS

Wednesday, 13 March 2024 14:30 (2h 30m)

Contribution ID: **22** Type: **not specified**

Poster session and Networking

Wednesday, 13 March 2024 17:00 (1h 30m)

Contribution ID: **23** Type: **not specified**

Welcome message and the ALBA Synchrotron

Thursday, 14 March 2024 09:00 (15 minutes)

Presenter: BISCARI, Caterina (Director of the ALBA Synchrotron)

Contribution ID: **24** Type: **not specified**

Talk by a partner of the project

Thursday, 14 March 2024 09:30 (45 minutes)

Presenter: PARKIN, Stuart (Director of the Max Planck Institute of Microstructure Physics)

Contribution ID: **25** Type: **not specified**

Electric Field-Control of the Magnetic Anisotropy in Magnetoelectric Fe/PMN-PT Heterostructures

Thursday, 14 March 2024 10:15 (45 minutes)

Presenter: TEMST, Kristiaan (Head of the Quantum Solid State Physics research unit at KU Leuven)

Contribution ID: **26** Type: **not specified**

On the X-ray photoelectron spectroscopy analysis of LiNixMnyCozO2 (NMC) battery electrodes

Thursday, 14 March 2024 11:25 (25 minutes)

Positive electrodes based on lithium-nickel-manganese-cobalt oxides (NMC materials) have been quite often characterized with XPS to address ageing mechanisms of NMC materials. Unfortunately, complexity of the multi-element systems containing several transition metals with rich photoelectron and Auger electron spectra turns the XPS analysis of the chemical state and elemental composition into a quite challenging task. In this talk I would like to point attention of the community to two common problems in the interpretation of the XPS spectra of the NMC materials: confusion of Ni2p spectra with Auger electron spectra (FKLL) of fluorine from PVdF binder and from decomposition of the electrolyte, when the XPS spectra are acquired with Al Kα X-ray source; 2) ambiguous fitting of the XPS spectral lines with several Lorentzian-Gaussian shapes leads to doubtful assignments of the oxidation states and questionable conclusions on the ageing mechanisms of the electrode materials. In particular, it pertains to quantification of the Ni3+/Ni2+ ratio in the NMC electrodes. In the talk we detail the common mistakes made when analyzing the Ni3+/Ni2+ ratio and then we present a novel approach to quantify Ni3+/Ni2+ ratio by making use of the satellite structure in the Ni2p spectra, which was generally ignored previously. We have shown that the satellite in the Ni2p spectra of the NMC compounds is mainly originated from the Ni2+ species and we use the intensity ratio between Ni2p3/2 main peak and the satellite to estimate Ni3+/Ni2+ ratio. Applying this approach for commercial NMC333, NMC532, NMC622 and NMC811 powder materials we find good correlation with theoretically predicted values for freshly made materials.

Presenter: BONDARCHUK, Alex (Head of the Advanced Electron Microscopy Facility at INL)

Contribution ID: **27** Type: **not specified**

A twisted view on two-dimensional spintronics

Thursday, 14 March 2024 12:15 (25 minutes)

Presenter: MAÑAS, Samuel (Department of Quantum Nanoscience, Delft University of Technology)

Contribution ID: **28** Type: **not specified**

Quantum nanostructures at atomic scale: From vertical hybrid nanowires to planar nanowire networks and 2DEG/2DHG systems

Thursday, 14 March 2024 13:05 (25 minutes)

Presenter: ARBIOL, Jordi (ICREA Prof, ICN2)

Contribution ID: **29** Type: **not specified**

Talk by a partner of the project

Presenter: 25+5 MIN

Contribution ID: **30** Type: **not specified**

Guided tour to ALBA Instruments and Laboratories for Project Partners and Invited Speakers

Thursday, 14 March 2024 15:45 (1h 45m)

Contribution ID: **31** Type: **not specified**

Discussions / Drafting of joint projects

Friday, 15 March 2024 09:00 (2 hours)

Contribution ID: **32** Type: **not specified**

FUNLAYERS General Assembly meeting (close sessions)

Friday, 15 March 2024 11:30 (2 hours)

Contribution ID: **33** Type: **not specified**

Introduction to the FUNLAERS project

Thursday, 14 March 2024 09:15 (15 minutes)

Presenter: FERNÁNDEZ-ROSSIER, Joaquín (Head of the Group of Theory of Quantum Nanostructures at INL)

Contribution ID: **34** Type: **not specified**

Flat bands in twisted materials

Thursday, 14 March 2024 11:50 (25 minutes)

Presenter: RUBIO VERDÚ, Carmen (ICFO, the Institut of Photonic Sciences)

Contribution ID: **35** Type: **not specified**

Unlocking New Horizons: Investigating Three-Dimensional Magnetism via Correlative Microscopy

Thursday, 14 March 2024 12:40 (25 minutes)

Presenter: RUIZ GOMEZ, Sandra (Max Planck Institute for Chemical Physics of Solids)

Contribution ID: **36** Type: **not specified**

Round Tables

Thursday, 14 March 2024 14:30 (1h 15m)

Contribution ID: **37** Type: **not specified**

Dinner at Restaurant Casa Amalia for Project Partners and Invited Speakers

https://casaamalia.com/