



Contribution ID: 254

Type: **not specified**

XAFS Technique for Enhancing Research in Energy Domain

Tuesday, 19 November 2024 14:30 (20 minutes)

X-ray Absorption Fine Structure (XAFS) spectroscopy has emerged as a non-destructive and powerful analytical technique for advancing research not only in physics but also in chemistry, environmental science, biology, archaeology, and, naturally, in the energy domain, offering invaluable insights into the structural, electronic, and chemical properties of materials under realistic conditions. This non-destructive method provides detailed information on the local electronic/atomic environment of elements within a material, capturing changes in oxidation state, coordination geometry, and atomic bonding.

In the energy sector, XAFS plays a key role in the development and optimization of materials for a wide range of applications, including energy storage (batteries, supercapacitors, etc.), energy conversion (fuel cells and solar cells), and catalytic processes for renewable energy production.

In this presentation, a quick description of the experimental setup at the BM08-XAFS/XRF beamline at the Synchrotron-light for Experimental Science and Applications in the Middle East (SESAME) will be shown; a minimum of the XAFS technique basics will be highlighted; and at last, selected examples of research in the field of energy conducted at BM08-XAFS/XRF beamline in SESAME will be illustrated for a clearer and closer picture.

Primary author: Dr HARFOUCHE, Messaoud (SESAME)

Presenter: Dr HARFOUCHE, Messaoud (SESAME)

Session Classification: Plenary

Track Classification: AfLS