

Sirius Beamlines for Nanoscience Studies

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In this talk will introduce the new the new Brazilian Synchrotron Light Source SIRIUS, that is up to now the largest and most complex research infrastructure ever built in Brazil and one of the select group of 4th generation synchrotron machines as MAX-IV and ESRF-EBS. This machine functions as a great microscope, which reveals the molecular, atomic, and electronic structure of a wide range of nanomaterials and allowing research to answer the challenges facing Brazil and the world in areas such as energy, health and the environment that requires the knowledge of how things work on the scale of atoms and molecules. Then has a potential to solve the major scientific problems in a wide range of research fields: development of lighter materials, better drugs, more efficient fertilizers, more nutritious foods, cheap and renewable energy sources, less polluting industrial processes, or better magnetic materials. Here will be introduced the new beamlines devoted to studies on X-ray Crystallography and X-ray Absorption techniques in application to nanoscience field. The actual status and the recent advances in the beamlines will be reviewed in detail.