REXS2025- International Conference on Resonant Elastic X-ray Scattering

REXS: a Journey Across Space and Time

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ABSTRACT

In this introductive talk, an overview of Resonant Elastic X-ray Scattering will be presented, with the intent of introducing the audience to the following talks.

After a short historical perspective, a reminder on the complementarity to other technique (mainly neutrons) for the determination of magnetic structures, and on the relevance of the character of resonances and higher-rank orders, an introduction to more modern contributions across electronic orderings as realized in intriguing states of correlated materials will be proposed. Spanning across multiferroics and magnetoelectrics, high temperature superconductors and charge density waves, Skyrmions and AlterMagnets, examples of relevant microscopic information on structures and interactions, on phases and transitions across a broad spectrum of materials, resonances and approaches, will be provided.

Then, the discussion will naturally progress on the opportunities and challenges offered by coherent beams available at the new generation machines. Together with the development of various imaging techniques, the extraction of time scales characteristic of collective dynamics will be introduced. Few ideas on possible approaches to the investigation of space-and-time (either extrinsically – by informed average, or intrinsically – by Orbital Angular Momentum) will be considered.

Finally, current scientific questions and technical requirements will be surfed upon.