

# FASEM 2026

Monday, 16 March 2026 - Friday, 20 March 2026

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## Book of Abstracts



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## Neutron and x-ray reflectometry for the study of thin films and interfaces

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Neutron and x-ray reflectometry are complementary methods that allow the study of thin films and interfaces. I will discuss the basic principles of reflectometry experiments and data analysis. From specular reflectivity density profiles long the normal of interfaces can be extracted, while off-specular and grazing incidence scattering provides information about in-plane correlations. Examples in hydrogen storage, magnetism and polymer science will be presented.

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## Hydrogen storage: Finite size and proximity effects

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Hydrogen will play a major role as energy carrier in the transition towards a sustainable and carbon dioxide emission free society. I will discuss the opportunities and challenges to store hydrogen. Emphasis will be on proximity and finite size effects, which allow to tune the absorption properties, specifically, the charging kinetics, gravimetric and volumetric capacity as well as efficiency of discharging.

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## Small Angle Scattering: Leaving Atoms Behind and Going Big

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Many processes in energy materials do not only depend on the microscopic arrangement of atoms on the atomic scale, but are controlled by the gross characteristics and morphology of matter on the nano and microscale. Small-angle X-ray/neutron scattering (SAXS/SANS) allows to access these features giving insights into the size, shape, and arrangement of objects of few nanometers to several hundreds of nanometers. This lecture will introduce key concepts of small-angle scattering and give some examples on how SAXS and SANS can be used to study battery materials.

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## Operando characterizations of batteries : from particles to devices

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Understanding key reaction and degradation mechanisms in batteries require to combine different characterization tools and obtain structural, chemical, morphologicak insights into the materials transformations, from the scale of individual active particles to the scale of a working commercial battery device. Neutrons and X-rays are particularly suited for this purpose. We will show some recent examples of their application in the field.