

Séminaire SOLEIL

"Resonant Inelastic Soft X-ray Scattering Spectroscopy of Actinide Materials"

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Invité par Karol HRICOVINI

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Grand Amphi SOLEIL

Resonant inelastic x-ray scattering (RIXS) measurements at the actinide 5d threshold provide an opportunity to study in detail elementary excitations in actinide compounds due to higher resolution of such experiments in comparison with those at the actinide 3d and 4d thresholds. It has turned out that the technique is very sensitive to the valency and the chemical state of actinide in contrast to x-ray absorption spectroscopy having a drawback of the substantial smearing of spectral structures due to large core-hole lifetime broadening. In this situation, the virtually unlimited resolution (defined by the response function of the instrument) of the RIXS technique and its ability to enhance transitions to low-lying excited states are especially useful. RIXS spectroscopy provides good signatures in terms of new distinct transitions, representing electronic excitations within the 5f shell and having a characteristic profile. This helps to distinguish between actinide species with different oxidation states, especially in case when one of species has much lower concentration than another. Experimental data for systems of light actinides, such as U, Np, and Pu, will be presented and discussed along with the results of model calculations.

Formalités d'entrée : accès libre dans l'amphi du Pavillon d'Accueil. Si la manifestation a lieu dans le Grand Amphi Soleil du Bâtiment Central, merci de vous munir d'une pièce d'identité (à échanger à l'accueil contre un badge d'accès).

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