



Institut de Minéralogie et de Physique des Milieux Condensés  
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# SÉMINAIRE

## Vendredi 11 février, 11h00

*Salle de Conférence, 4ème étage, Tour 22-23, Salle 1  
IMPMC, Université P. et M. Curie, 4, Place Jussieu, 75005 Paris*

## FRANCK DE GROOT

*Debye Institute of Nanomaterials Science, Utrecht University, Netherlands*

# X-RAY SPECTROSCOPY: NEW DEVELOPMENTS IN THEORY AND EXPERIMENT

New developments in X-ray absorption spectroscopy and resonant inelastic x-ray scattering will be discussed. First an introduction is given of X-ray absorption spectroscopy, including the multiplet interpretation of XAS spectral shapes. Examples are given from the use of X-ray magnetic circular dichroism (X-MCD) and the effects of p-bonding on iron complexes. With the recent developments in nanoreactors, scanning transmission x-ray microscopy (STXM) experiments make it possible to follow metal L edges at 1 bar and 500 C, with a spatial resolution of 20 nm. This allows the in-situ spectroscopic study of a single nanoparticle (in action). A comparison will be made between x-ray and electron spectromicroscopy and some future directions of spectromicroscopy of nanomaterials are given. The last part of the talk deals with the role of resonant inelastic X-ray scattering (RIXS) to unravel the nature of the surface of small metal nanoparticles.