Institut de Minéralogie et de Physique des Milieux Condensés
Unité Mixte de Recherche 7590
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SÉMINAIRE
Lundi 4 juin, 11h30

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

Sakura PASCARELLI

ESRF, BP220, F-38043 Grenoble, France

INVESTIGATING EXTREME STATES OF MATTER BY X-RAY ABSORPTION SPECTROSCOPY

The European Synchrotron Radiation Facility is undergoing an important upgrade program. Eight new beamlines will become operational between 2012 and 2016. One of the beamlines is UPBL11, designed to provide conditions to perform time resolved and extreme conditions x-ray absorption spectroscopy.

UPBL11 hosts two energy dispersive x-ray absorption spectrometers coupled to two experimental stations, and will become operational in 2012. This instrument will provide new opportunities for investigating matter at extreme conditions of pressure, temperature and magnetic field, including kinetic studies of chemical reactions at high pressure and temperature, and investigation of extreme states of matter maintained only over very short periods of time.

I will make an overview of recent results obtained on the former energy dispersive XAS beamline ID24 in the area of extreme conditions. Examples cover studies of chemical reactions that occur in the interior of planets, the investigation of pressure induced collapse of ferromagnetism in 3d metals, and first attempts to probe the electronic and local structure in melts at high pressures. Perspectives for the investigation of laser-shocked matter are also discussed.

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