



MP1: Glasses under extreme conditions (high pressure, high temperature, radiation...)

Verres en conditions extrêmes (hautes pressions, haute température, irradiation...)

Organisateurs

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Investigation on glassy materials under extreme conditions, such as high pressure, high temperature, high stress, high radiation, highly reactive conditions, etc..., is currently regarded as a challenging experimental activity, aiming to shed light on peculiar fundamental physical properties for the understanding of the interior of planets and also to possible innovative applications in material sciences.

Under imposed external conditions, oxide, molecular or metallic glasses can show spectacular structural changes (density, rigidity...) leading to a modification of their physical, optical, and mechanical properties. These studies are of particular interest to better understand the glassy state and also to tailor the electronic and structural properties for the design of new materials with specific properties. *Polyamorphism* (PA), which is the ability for a system to form several distinct amorphous phases of identical composition, is one example of the effect of pressure or temperature on the local structure of glasses or melts. But these intriguing phenomena are difficult to observe and are then poorly understood.

The objective of this mini-colloquium is to bring the theoretical and experimental experts together in order to debate around the modifications induced by extreme conditions in natural or synthetic glasses using a multi-scale approach based on the following analysis methods:

- Scattering methods (X-ray, neutron)
- Solid-state spectroscopic methods (X-ray absorption spectroscopy, NMR, vibrational spectroscopy methods, picoseconds ultrasonics, ...)

- New possibilities using Large Scale Facilities (Synchrotron, Neutron Source,)
- Microscopy (electron, near-field, surface investigations, ...)
- Mechanical properties
- Numerical modeling including structural modeling, atomistic modeling, and ab initio approaches.

Le GDR Verre soutiendra les doctorants participant à cette journée (s'adresser aux organisateurs).