CEA - Saclay 91191 Gif-sur-yvette Cedex
Service de Physique de l'Etat Condensé
SÉMINAIRE
Mercredi 18 Décembre 2013 à 11h15
Orme des Merisiers SPEC, Salle Itzykson, Bât.774

Microscopic and mesoscopic dynamics in disordered systems

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Although in the last decades disordered materials have been extensively investigated and introduced in common use as functional materials (ex. polymers, metallic glasses..) a full understanding of their properties is still missing. This is especially true concerning their elastic properties, at the origin of their mechanical and physical qualities (brittleness, p[lasticity, thermal transport..). Collective modes reminiscent of phonons in a crystal are present in all disordered systems, liquids as well as glasses, but with some disordered-system specific features, both in the acoustic dispersion and attenuation, which reflect into their specific thermal and elastic properties. A complete understanding of these features is still missing, despite long-standing theoretical and experimental investigations. Very recent experimental results, coupled to molecular dynamics simulations, have contributed in shedding light on the dynamics of disordered systems and on its link to the one of the crystalline counterpart (i.e. the crystalline phase with the same local order), opening the way to a full understanding of the elastic properties of disordered systems. I will present here an overview of the local order and average disorder fingerprints on the microscopic dynamics of liquids and glasses, following our recent results.

A coffee break will be served at 11h00. The seminar will be given in English.