

MS36-P02 | DYNAMICAL DISORDER IN THE SOLID STATE: INSIGHTS FROM DIELECTRIC RELAXATION SPECTROSCOPIES

ROCA PAIXAO, Luisa (University of Lille, Villeneuve-d'Ascq, FRA); Viciosa, Maria Teresa (Univ of Lisbon, Lisboa); Correia, Natalia (University of Lille, Villeneuve d'Ascq, FRA); Affouard, Frederic (University of LILLE, VILLENEUVE D'ASCQ, FRA)

In order to obtain a thorough understanding of the behavior of simple or multiple-component crystalline and amorphous solids, various experimental techniques are conventionally used: X-ray diffraction, Infra-red & Raman spectroscopy, solid state nuclear magnetic resonance, calorimetric analysis... However, there are other less known techniques from the crystallographic community, namely Dielectric Relaxation Spectroscopy and Thermally Stimulated Currents, which can also be used to probe phase transformations and molecular mobility in a wide range of temperature and frequency (between 10^{-3} Hz and 1 GHz). These are commonly used techniques for the characterization of amorphous and semi-crystalline disordered states.

In the present work, we will illustrate how these dielectric techniques can contribute significantly to the understanding of crystalline mesophases characterized by different levels of dynamic disorder, such as liquid crystals, plastic crystals and conformational disorder crystals.

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