

Abstract Submitted
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Structural and microscopic relaxations in glycerol: an IXS study ALESSANDRO CUNSOLO, Brookhaven National Laboratory — We present an Inelastic X Ray Scattering study of the THz dynamics of room temperature glycerol at pressures spanning the 0.66-3 Kbar range. We propose a comparison with ultrasound absorption results available in literature, which leads to infer the presence of two distinct relaxation phenomena, a slow and a fast one. Although the former relaxation has been thoroughly studied in glycerol by lower frequency spectroscopic techniques, no experimental evidences of the latter were so far reported in literature. A line-shape modeling based upon the memory function formalism allows us to observe that the characteristic timescale of the fast relaxation ranges in the sub-picosecond, tends to decrease with increasing the wave-vector and is rather insensitive to pressure changes. More in general, the observed phenomenology definitely reveals the microscopic, single particle, nature of this additional relaxation process.

Alessandro Cunsolo
Brookhaven National Laboratory

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