

Dr. Paddy Royall

*University of Bristol, UK*

“The case for a thermodynamic glass transition: fact or fiction?”

Usually we expect to understand the macroscopic properties of materials through the microscopic organisation of their constituent atoms or molecules. Liquids have a disordered structure while crystalline solids exhibit long-ranged translational order. Glasses however challenge this notion, as the solidification that characterises the glass state does not correspond to an obvious change in structure. Solid glasses are sometimes said to be “structurally indistinguishable” from liquids. Here we address the question of whether one can identify any change in structure between a glass and its liquid. This will lead us to consider what exactly is meant by glass “transition” and to examine the evidence for any thermodynamic glass transition at finite temperature.