

Topological and geometrical defects in amorphous solids

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Defects are central to the physics of crystalline materials, governing phenomena from the onset of plasticity and mechanical failure to melting in two dimensions. In disordered solids, however, the absence of a unique reference configuration has long suggested that the notion of a defect may be ill-defined and of limited use for predicting or characterizing physical behavior.

This view has been increasingly challenged in recent years by the development of novel topological and geometrical approaches. These frameworks indicate that well-defined defects can, in fact, be identified in glasses and can serve as powerful tools to describe their complex mechanical response. In this talk, I will briefly review these advances, with a particular focus on how topological and geometrical defects provide insight into the plasticity of amorphous materials.