

Internal Webinar

Attempts to probe plasticity and failure mechanisms in amorphous solids employing the finite element method

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Amorphous solids surround us in their myriad different forms. Their broad utility demands careful analysis and design. However, the material description of amorphous solids is still not well understood. The talk will feature the attempts to analyse plasticity and failure in amorphous solids through two open geometry problems.

The first problem involves replicating what might be the precursor of plasticity in amorphous solids – shear transformation zone. The second problem involves mimicking the intriguing aspect ratio effect observed in amorphous solids at the nanoscale at room temperature. Though amorphous solids are infamously known for their catastrophic brittle failure, at the nanoscale, below a critical aspect ratio, an amorphous solid specimen shows ductility.

Both problems are attempted to be solved using the finite element method with inputs from molecular simulations wherever applicable.

Wednesday, Mar 20th 2024

13:45 Hrs

