

A multi-scale material modeling approach to evaluate material stress-strain curves of irradiated materials

- Conducting controlled neutron irradiation experiments is very difficult and these data are also scarce in literature.
- A multiscale material modeling methodology has been developed to simulate the effect of neutron irradiation on material stress-strain curve.
- This methodology uses several length scales such as molecular dynamics, dislocation dynamics, crystal plasticity and micro-mechanical damage mechanics based scales.
- In this work, the effect of irradiation on material deformation behavior on FCC class of materials was considered. The methodology has been applied to study the effect of irradiation on copper, Aluminium alloys and stain less steel such as SS304L.

