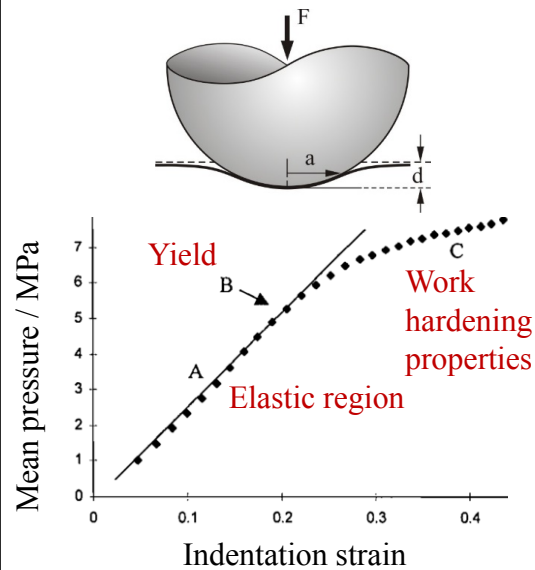


Bridging the gap between small scale mechanical testing and bulk material property measurements of advanced, structural nuclear materials

Anna Kareer

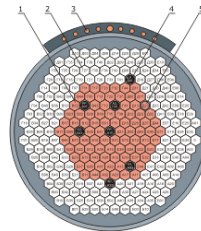
1. Spherical indentation

Indentation stress-strain curve

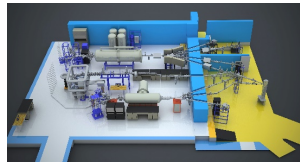


2. Application to irradiated materials

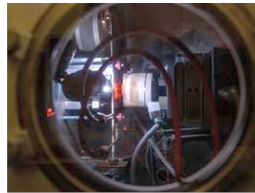
i. BOR-60 reactor irradiated up to 100dpa



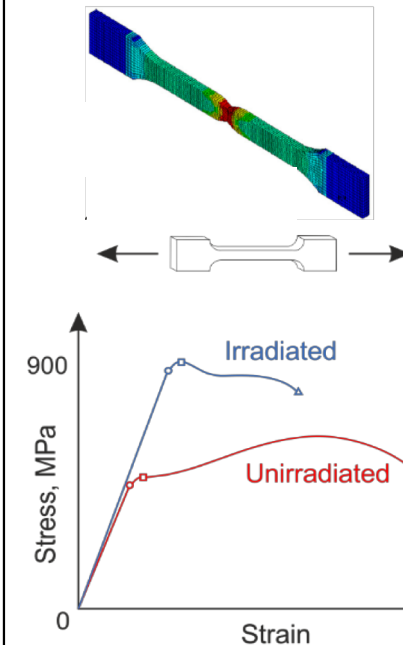
ii. Heavy ion irradiated - MIBL



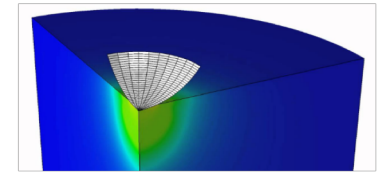
iii. At operating temperatures, up to 900°C in vacuum



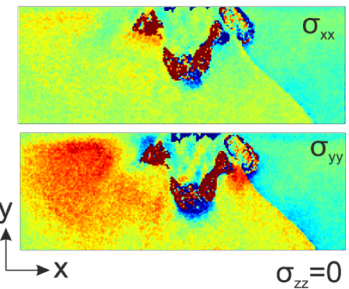
3. Validation and modelling



i. Crystal Plasticity Finite element modelling



ii. Strain mapping HR-EBSD



Key Materials : T91 Ferritic Martensitic Steel, 800H austenitic steel, 14YWT ODS steel