

## WORKSHOP

# CREEP CAVITY INITIATION AND EARLY GROWTH LEADING TO FAILURE IN METALS AND ALLOYS

OCTOBER 11, 2022

## PROGRAMME

|       |                                                                                                        |                                                    |
|-------|--------------------------------------------------------------------------------------------------------|----------------------------------------------------|
| 08:45 | Registration                                                                                           |                                                    |
| 09:30 | Welcome and Introduction                                                                               | Professor John Bouchard, OPEN UNIVERSITY, UK       |
| 09:55 | <b>Does creep damage matter in energy materials?</b> Dr Hedieh Jazaeri, OPEN UNIVERSITY, UK (CHAIR)    |                                                    |
|       | Improved methods for predicting creep damage in current and future high temperature nuclear components | Dr David Dean, EDF ENERGY, UK                      |
|       | Long-term management of supercritical power plant                                                      | Professor Jonathan Parker, EPRI, UK                |
| 10:45 | Tea/coffee break                                                                                       |                                                    |
|       | Fusion materials challenges                                                                            | Dr Chris Hardie, UKAEA, UK                         |
| 11:30 | <b>Can classical cavity initiation theory be improved?</b> Professor Jonathan Parker, EPRI, UK (CHAIR) |                                                    |
|       | Nucleation: important microstructural length scales and the role of other defects                      | Professor Alan Cocks, UNIVERSITY OF OXFORD, UK     |
|       | Modelling nucleation and early-stage growth                                                            | Professor Alan Cocks, UNIVERSITY OF OXFORD, UK     |
|       | Incorporation of nucleation and cavity growth in crystal plasticity models                             | Dr Elsiddig Elmukashfi, UNIVERSITY OF OXFORD, UK   |
| 12:30 | Lunch                                                                                                  |                                                    |
| 13:15 | <b>What creep damage can we identify and quantify?</b> Dr David Dean, EDF ENERGY, UK (CHAIR)           |                                                    |
|       | Volumetric analysis of creep cavitation using SANS                                                     | Dr Hedieh Jazaeri, OPEN UNIVERSITY, UK             |
|       | Microdeformation and grain boundary sliding in copper under creep                                      | Dr Ashutosh Bhagurkar, OPEN UNIVERSITY, UK         |
|       | Correlative microscopy approaches for evaluating creep cavitation in metals and alloys                 | Dr Siqi He, UNIVERSITY OF BRISTOL, UK              |
| 14:30 | <b>Insights to creep damage.</b> Dr Chris Hardie, UKAEA, UK (CHAIR)                                    |                                                    |
|       | How preloading, stress, and strain rate can affect cavitation                                          | Dr Johannes Nicol, OPEN UNIVERSITY, UK             |
|       | Effects of stress relaxation and microstructure on cavity nucleation and growth/closure                | Dr Hao Shang, UNIVERSITY OF BRISTOL, UK            |
| 15:30 | Tea/coffee break                                                                                       |                                                    |
| 15:50 | <b>Academic and industrial impact.</b>                                                                 |                                                    |
|       | Key outcomes and discussion                                                                            | Professor Peter Flewitt, UNIVERSITY OF BRISTOL, UK |
| 16:15 | Finish                                                                                                 |                                                    |