



Poster 15

Multiscale deformation modelling of small scale mechanical tests



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ABSTRACT:

In this poster the deformation of small-scale mechanical tests on dual-phase (DP) steels is modelled. A focus on continuum finite element modelling to simulate the deformation of punch tests in ABAQUS software is done. However, at small scales the macroscopic material properties are dependant on the microstructural properties, it is necessary to characterize the deformation at the granular level. A micro-scale model is developed to simulate deformation the DP alloy's microconstituents. Combining the continuum and micro-scale modelling can provide a more accurate behaviour. The derived material characteristics can then be applied to larger scale models and aid with the screening of prototype alloys. This complements the rapid development of novel steel alloys.



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