Towards a phase field model of the microstructural evolution of duplex steel with experimental verification

A phase field model to study the microstructural evolution of a polycrystalline dual-phase material with conserved phase fraction has been implemented, and 2D simulations have been performed. For 2D simulations, the model predicts the cubic growth well-known for diffusion-controlled systems. Some interphase boundaries are found to show a persistent non-constant curvature, which seems to be a feature of multi-phase materials. Finally, it is briefly outlined how this model is to be applied to investigate microstructural evolution in duplex steel. © (2012) Trans Tech Publications, Switzerland.