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Diffusion, coarsening and plasticity in alloys using the phase field crystal model PAK YUEN CHAN, JONATHAN DANTZIG, NIGEL GOLDENFELD, University of Illinois at Urbana-Champaign — The phase field crystal model describes materials at the nanoscale on diffusive time scales, and can capture elasticity, crystallography, dislocation and grain boundary dynamics, as well as solidification processes. Here we present the extension to binary alloys, taking into account vacancies. We show how the model can be applied to technologically important phenomena, such as diffusion, grain coarsening and plasticity.

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