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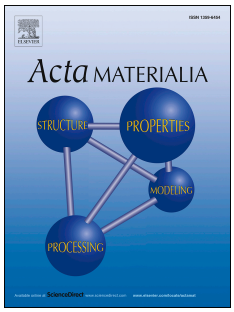

Growth competition between columnar dendritic grains – Cellular Automaton versus Phase Field modeling

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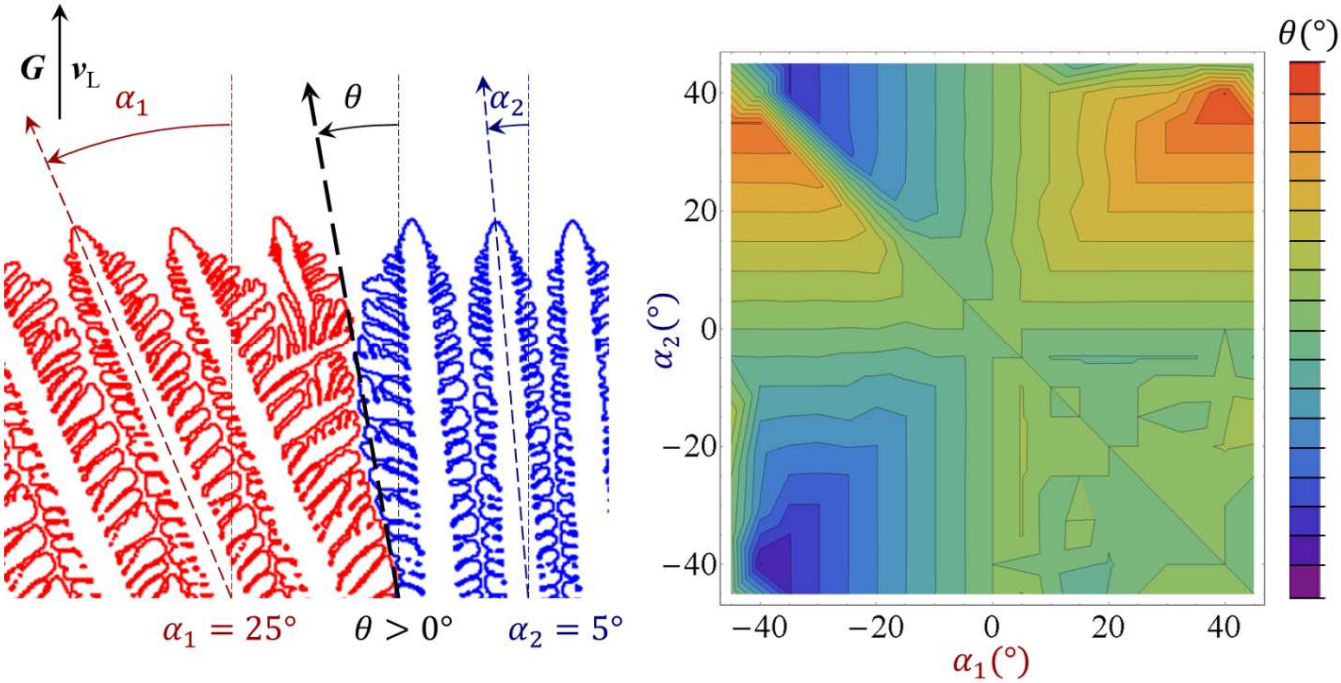
Graphical abstract



Growth competition between dendritic bi-crystals of orientations α_1 and α_2 is simulated with a Phase Field (PF) model and with a Cellular Automaton (CA) model. Maps of the grain boundary orientation angle, θ, are computed for the full spectrum of bi-crystals orientation (α_1, α_2). Quantitative PF vs. CA comparison is provided based on a statistical analysis of the maps.