A Survey of Mean-Field-Kinetic-Equations of Lattice Gases

Jean-Francois.Gouyet
Labo. PMC, Ecole Polytechnique
F-91128 Palaiseau Cedex, France
jean-francois.gouyet@polytechnique.fr

The kinetic of evolution of systems offering an internal periodic structure have been described with a notable success by lattice gas models. The Mean-Field approximations of the associated master equation, by their efficiency to deal with far from equilibrium systems, appear themself of great interest to study phase transformations or separations, structural evolution in alloys, ordering, grain growth... or even dendritic growth and pattern formations. We present here a rapid survey of the various approaches involving Mean-Field-Kinetic-Equations, and their applications in material science.