

Abstract Submitted
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Simulation studies of diffusion limited ballistic growth of particles from a surface¹ STEPHEN M. KUEBLER, Department of Chemistry & The College of Optics and Photonics, University of Central Florida, Orlando, ANIKET BHATTACHARYA, Department of Physics, University of Central Florida, Orlando — Motivated by electroless deposition of metals on polymeric surfaces we plan to study evolving morphologies of deposited particles from a surface using Monte Carlo simulation in continuum which shares characteristics of both diffusive and ballistic behavior. In the proposed model we assume that the particles residing at the surface of a growing pattern are capable of attracting particles those are within a certain range. Once one of these seed particles attracts a particle it transfers its attractive characteristics to the newly adsorbed particle which then acquires this characteristics for further growth. The motion of the particles in the bulk is diffusive. However, once they are within the range of an “active” particle they move ballistically along a straight line and gets adsorbed to a cluster unless hindered by other particles on its way. We plan to report the characteristics of the evolving patterns as a function of density of the diffusive particles, the range of the attractive particles, and the speed of ballistic moves.

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