Abstract Submitted
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Morphologies of an anisotropic diffusion limited growth model to study electroless deposition[1] STEPHEN M. KUEBLER, Department of Chemistry and The College of Optics and Photonics, University of Central Florida, CHRISTOPHER J. CLUKAY, Department of Chemistry, University of Central Florida, ANIRUDDHA DUTTA, Department of Physics, University of Central Florida, CHRISTOPHER N. GRABILL, Department of Chemistry, University of Central Florida, HELGE HEINRICH, Department of Physics and The Advanced Materials Processing and Analysis Center, University of Central Florida, ANIKET BHATTACHARYA, Department of Physics, University of Central Florida — We report results of Monte Carlo simulation of a model which mimics certain aspects of electroless deposition of metals on polymeric surfaces. In the proposed model growth germinates from certain "active" particles residing on a flat surface. Further growth occurs via sticking of a diffusing particle while it is within the range of one of these active particles. Once within the attractive range of an "active" particle, the motion of the approaching particle is considered ballistic. This newly adsorbed particle then acts as an "active" site for further growth and the process continues. We monitor the layer by layer density variation, the pair correlation function and the structure factor as a function of the initial density of the particles and the range of the reaction, and comment on the fractal aspect of the morphology.

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