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Vanessa Danielle Machuca* (vdm02014@mymail.pomona.edu), 2484 Paloma St., Pasadena, CA 91104. *Oscillations and Macropatterning in Electroless Silver Deposition on Copper*. Preliminary report.

This work explores the $AgNO_3/Cu$ system as a model system for self-assembly in electroless deposition with potential analogies to disease propagation. Parameters like $AgNO_3$ concentration, solution viscosity, and copper electrode surface area were varied to explore the dynamics of the $AgNO_3/Cu$ system. Dynamic regions were defined by the stability and frequency of redox potential oscillations. Macropatterning in this system was also investigated, using image and video analysis. Spatiotemporal plots of silver aggregate diameter were constructed and fractal dimensions calculated for the various growth regimes exhibited in the macropatterns observed. Simulations were also run using a previously developed differential equation model, and connections made to the well-known diffusion-limited aggregation model. (Received September 27, 2017)