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Quantitative Transmission Electron Microscopy of Nanoparticles and Thin-Film Formation in Electroless Metallization of Polymeric Surfaces[1] ANIRUDDHA DUTTA, HELGE HEINRICH, STEPHEN KUEBLER, CHRIS GRABILL, University of Central Florida, ANIKET BHATTACHARYA — Gold nanoparticles(Au-NPs) act as nucleation sites for electroless deposition of silver on functionalized SU8 polymeric surfaces. Here we report the nanoscale morphology of Au and Ag nanoparticles as studied by Transmission Electron Microscopy (TEM). Scanning TEM with a high-angle annular dark-field detector is used to obtain atomic number contrast. From the intensity-calibrated plan-view scanning TEM images we determine the mean thickness and the volume distribution of the Au-NPs on the surface of the functionalized polymer. We also report the height and the radius distribution of the gold nanoparticles obtained from STEM images taking into consideration the experimental errors. The cross sectional TEM images yield the density and the average distance of the Au and Ag nanoparticles on the surface of the polymer.

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