FORMATION OF SILVER NANOPARTICLES IN NATURAL AQUEOUS ENVIRONMENTS. Nelson Akaighe, Dr. M. Sohn, and Dr V.K. Sharma. Department of Chemistry, Florida Institute of Technology, 150W University Boulevard, Melbourne, FL 32901.

The interaction of Suwannee River humic acid (SUW) with silver ions (Ag^+) to produce silver nanoparticles (AgNPs) will be described. The rate and extent of Ag^+ reduction depends on the concentration, and pH of the SUW solution as well as the temperature of the reaction. The presence of colloidal silver was observed by UV-vis spectroscopy and the morphology, determined by transmission electron microscopy (TEM) and dynamic light scattering (DLS). The stability of the formed AgNPs was observed over a period of 180 days. These results suggest that the interaction of SUW and Ag^+ from sources such as silver mine tailings, photographic wastewaters and certain hot-springs could potentially lead to direct formation of AgNPs in natural aqueous environments.