Structure and morphology variation at annealing of self assembled Ag nanodots on HOPG under ambient conditions.  INDRAJITH SENEVIRATHINE, MATTHEW PAUTZ, Lock Haven University of Pennsylvania, JEFFREY PARKS, Bucknell University, ANURA GOONEWARDENE, Lock Haven University of Pennsylvania — Self assembly of noble metal nanostructures on surface support under ambient conditions is interesting due to various possible plasmonic and catalytic applications. These nanostructures have altered and complex characteristics due to their outer oxide layer resulting from ambient exposure. RT (~300K) Magnetron sputter deposited Ag, on clean, freshly cleaved HOPG was studied using ambient Scanning Tunneling Microscopy (STM), contact mode Atomic Force Microscopy (AFM) and Scanning Electron Microscopy (SEM). Surface elemental composition and distribution on the deposited system was measured with Energy Dispersive X ray Spectroscopy (EDX). Self assembled Ag nano dot structures on the surface was observed with Volmer - Weber growth mode at incremental Ag coverage. At Ag coverage of ~32 ML nucleated nano dots observed to have ~25nm diameter and ~4nm in height. At an increased Ag coverage of ~128ML, micron size super clusters were observed to coexist with the primary nano dots. Surface morphological and elemental (O and Ag) variations at annealing under successively higher temperatures will also be discussed.