

Abstract Submitted  
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**Morphology and structure of the self assembled Ag nanodots on undoped Si(100) under ambient conditions** JEFFREY PARKS, INDRAJITH SENEVIRATHNE, Lock Haven University of Pennsylvania — Self assembly is an important bottom up design approach in making nanostructures on substrate. Therefore understanding the self assembly mechanisms is very important. Morphology and structure of the self assembled of Ag nano dots via sputter deposition on the chemically cleaned ambient undoped si(100) wafer at RT ( $\sim 300\text{K}$ ) is observed via contact mode Atomic Force Microcopy (AFM). At a Ag coverage of  $\sim 60\text{ML}$  nucleation of the nanodots were seen, implying StranskiKrastranov growth mode. At a coverage of  $\sim 120\text{ML}$  the self assembled nanodots are clearly seen. These nanodots are observed to have  $\sim 40\text{nm}$  in width and  $\sim 10\text{nm}$  in height. At increase Ag coverage ( $\sim 120\text{ML}$  and  $\sim 180\text{ML}$ ) it is observed the number density of Ag nanodots increase in lock step. Higher the coverage size characteristics observed to show a higher variance. When annealed at successively higher temperatures ( $\sim 373\text{K}$ ,  $\sim 473\text{K}$ ,  $\sim 573\text{K}$ ) for an interval of 5min the structures seem to dissolve, implying kinetically limited growth. Conductivity measurements on these nanostructures will also be discussed.

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