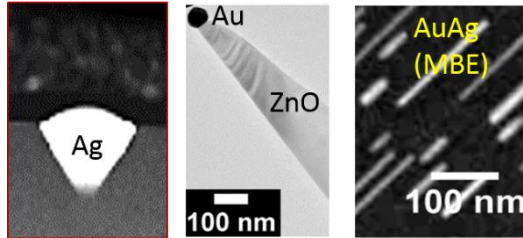


## Self-assembled Nanoscale Modification of Metal and Metal-Oxide interfaces: Electron Microscopy and Insitu XRD study

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Growth and application aspects of self-assembled metal, bi-metal and oxide nanostructures (such as Au, Ag, Au<sub>x</sub>Ag<sub>y</sub>, GeO<sub>2</sub>, Ag-MoO<sub>x</sub>, Au-ZnO, etc ) would be presented in this talk. The role of interfaces, reconstructed surfaces, and various enhanced reactions across the interfaces on semiconductor surfaces during the self-assembled growth of epitaxial and endotaxial nanostructures would be presented. A part of this talk would also dwell upon understanding the growth kinetics of above structures using *real-time in-situ* electron microscopy and synchrotron based *in-situ* X-ray diffraction. The *in-situ* XRD showed the variation of thermal expansion coefficient for coherently buried silver nanostructures depending on the growth processes and the particle sizes during the formation. These Ag endotaxial nanostructure had been used as a substrate for surface enhanced Raman spectroscopy for detecting crystal violet bio-molecules.

### References:

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