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**Synthesis and Cs-Corrected Scanning Transmission Electron Microscopy Characterization of Multimetallic Nanoparticles**[1] SUBARNA KHANAL, NABRAJ BHATTARAI, JESUS VELÁZQUEZ-SALAZAR, MIGUEL JOSE-YACAMAN, University of Texas at San Antonio, SUBARNA KHANAL TEAM — Multimetallic nanoparticles have been attracted greater attention both in materials science and nanotechnology due to its unique electronic, optical, biological, and catalytic properties lead by physiochemical interactions among different atoms and phases. The distinct features of multimetallic nanoparticles enhanced synergetic properties, large surface to volume ratio and quantum size effects ultimately lead to novel and wide range of possibilities for different applications than monometallic counterparts. For instance, PtPd, Pt/Cu, Au-$Au_3Cu$, AgPd/Pt, AuCu/Pt and many other multimetallic nanoparticles have raised interest for their various applications in fuel cells, ethanol and methanol oxidation reactions, hydrogen storage, and so on. The nanostructures were analyzed by transmission electron microscopy (TEM) and by aberration-corrected scanning transmission electron microscopy (Cs-corrected STEM), in combination with high angle annular dark field (HAADF), bright field (BF), energy dispersive X-ray spectroscopy (EDS), and electron energy loss spectroscopy (EELS) detectors. These techniques allowed us to probe the structure at the atomic level of the nanoparticles revealing new structural information and elemental composition of the nanoparticles.

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Subarna Khanal
University of Texas at San Antonio

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