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Characterization of Order-Disorder Phase Transition Temperature for Select Nanoparticles GREG SUTHERLAND, Brigham Young University — Many metal alloys can form in chemically ordered structures, often resulting in significant changes in properties. The ordered structures are preferred at low temperatures and will go through an order-disorder phase transition at a critical temperature. The formation and stability of these ordered structures in alloy nanoparticles is not well understood but may give insight into the role size plays in phase transitions. To this end we are studying CoPt, AuCu, and FeNiPt alloy nanoparticles. We will focus this presentation on the characterization of these nanoparticles in a Transmission Electron Microscope (TEM) for composition, size, and structure. These nanoparticles are made by co-sputtering the constituents and annealing at different temperatures in various gas mixtures. The nanoparticle samples are prepared for TEM viewing by wedge polishing. We will discuss our results and possible implications.

Greg Sutherland
Brigham Young University

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