

Abstract Submitted
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Strategy to study Nucleation and Growth of Nanoparticles using Plasmon Absorbance of Au and Ag NARAYAN SHARMA, AMIT ACHARYA, PRAKASH ADHIKARI, Bowling Green State Univ — Noble metallic nanoparticles show interesting absorbance and scattering properties due to Plasmon resonance which occur when their electron density interact with the incident electromagnetic radiation of wavelength that are far larger than the particle size. Due to these properties, such nanoparticles have been the subject of interest for researchers around the world. Here, we present a method that can experimentally show nucleation and growth of nanoparticles merely by looking at the Plasmon absorbance profile. Gold nanoparticles of nearly 5 nm sizes was synthesized and silver shell was grown over gold under different conditions. The choice of gold and silver nanoparticles in this experiment lies on the fact that these two nanoparticles have very similar lattices while their Plasmon absorbance peaks are at different wavelengths. The eventual goal of this work is to develop an experimental strategy for monitoring the time-dependent monomer concentration during the hot-injection synthesis of Ag nanoparticles.

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