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ALEJANDRO CRUZ: Ag:Au bimetallic nanoparticles by pulsed laser ablation in liquid and their coatings.

Friday, 21 February 2020 16:00 (15 minutes)

Bimetallic nanoparticles have interesting properties for optical, electronic, magnetic and chemical applications. Pulsed laser ablation in liquid is an effective synthesis method to develop nanoparticles of metals, semiconductors and ceramics. In this work, colloidal solutions of bimetallic nanoparticles of silver / gold (50/50) were obtained by ablation using a Nd:YAG laser of 532 nm wavelength, with 10 nanosecond pulse, frequency 10 Hz. Then electrophoretic deposition was used to fabricate their coatings from bimetallic nanocolloids. The coating is deposited on different substrates under various electrophoretic deposition parameters. The optical properties of the Ag:Au nanocolloids were analyzed by UV-visible spectroscopy. The elemental composition and chemical states analysis of bimetallic nanoparticles and coatings were done by X-ray photoelectron spectroscopy (XPS), The morphology of the coating was analyzed by scanning electron microscope (SEM) technique. The results show that electrophoretic deposition is effective for developing coatings of bimetallic nanoparticles from their laser-synthesized nanocolloids.

Session Classification: SHORT TALKS

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