separation of polymer liquid phases ☆

Poster session II. : Rony Snyders, Mariana Braic

16:00 Growth control of carbon nanotubes using nanocomposite nickel/carbon thin films ⌄ **EE.8.4** ☆

16:00 Modulating the electrical conductivity of Ag/carbon nanocomposites synthesized by a hybrid PVD/PECVD process ⌄ **EE.8.5** ☆

16:00 Properties of stainless steel-containing TiSiC coatings deposited by cathodic arc method using C2H2 as precursor gas ⌄ **EE.8.6** ☆

16:00 Adsorption of nitrile species on Ag/Al2O3 nanostructures exposed to the atmosphere and produced by laser techniques. ⌃ **EE.8.7** ☆

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Resume : Silver nanoparticles on insulating supports have a plasmonic resonance stronger than other noble metals. Thus their plasmonic response can be exploited in a wide range of fields: Catalysis, Photonics or Biosensors. However chemical degradation, plasmonic damping and red-shift of Ag nanostructures in ambient conditions can prevent their widespread use. Herein, we have deposited Ag nanoparticles on a 15 nm buffer layer of amorphous Al2O3 by pulsed laser deposition. Later on, some regions of the samples were exposed to laser irradiations. Both regions (as deposited and laser irradiated) are forming discontinuous layers with larger Ag nanoparticles in the case of laser exposed regions. The plasmonic, morphological and chemical evolutions of these Ag nanostructures have been analyzed for 15 months by extinction spectroscopy, scanning electron microscopy (SEM) and X-ray photoelectron spectroscopy (XPS). Extinction spectroscopy and electron microscopy have shown that laser irradiated regions are optically and morphologically more stable than as deposited ones, where a progressive blue shift in the plasmonic resonance and a gradual agglomeration of native silver nanoparticles are observed after several months of atmospheric exposure. The chemical characterization of these degradated samples by XPS has revealed that silver nanoparticles have been thoroughly oxidized, and their surface adsorbs noticeable amounts of nitrile species. The formation of a dielectric shell surrounding the core of metallic silver, made of silver oxide and silver nitrile, is proposed. Nitrile species would be formed at the surface of the metallic nanoparticles by adsorption of NO and NO2 from the atmosphere, followed by reaction with CO or other carbonaceous reductive agents, a catalytic reaction promoted by the Al2O3 buffer layer.

16:00 Si containing high entropy alloy carbide coatings - in vitro corrosion resistance ⌄ **EE.8.8** ☆

16:00 Magnetic properties of vertically-oriented Fe naznoparticles inserted into MWCNTs ⌄ **EE.8.9** ☆