

electrolyte and cathode. The electrolyte-supported cells with the interlayer have larger on 30% the overall power output compared to that achieved with the cells without an interlayer. The LSCF interlayer could also act as a transition layer that improves adhesion and relieves both thermal stress and lattice strain between the cathode and the electrolyte. Our results demonstrate that pulsed magnetron sputtering provides a low-temperature synthesis route for realizing ultra-thin nanocrystalline LSCF films layers for intermediate- or low-temperature solid oxide fuel cells.

P9) The nonisothermal model of the initial stage of ion implantation process

Author: Elena Parfenova, Russian Federation, Tomsk Polytechnic University, graduate student, engineer

Abstract: Due to material processing with charged particle fluxes, the purposeful change of the surface layer material state is possible, thus improving its operating abilities. Achievement of important results requires a detailed study of the processes occurring during processing. Surface treatment is accompanied by different physical and chemical factors that affect each other and influence the formed macroscopic properties of work materials. The physical phenomena occurring in the substrate during beam of charged particles processing are studied by many authors. The computer simulation has a big significance for this research, because the role of each separate factor can't be experimentally investigated. The paper is aimed at investigating the nature of interaction of two different scale processes - impurity diffusion and mechanical stress wave propagation.

P10) Preparation of Ordered Silver Angular Nanoparticles Array in Block-Copolymer Film for Surface Enhanced Raman Spectroscopy

Author: Oleksiy Lyutakov, Czech Republic, UCT Prague, researcher

Abstract: We report a single-step method of preparation of ordered silver nanoparticles array through template-assisted nanoparticles synthesis in the semidried block copolymer film. Ordered nanoparticles were prepared on different substrates by the proper choice of solvents combination and preparation procedure. In particular: block copolymer and silver nitrate were dissolved in the mix of tetrahydrofuran, toluene, and n-methylpyrrolidone. During short spin-coating procedure ordering of block copolymer, evaporation of toluene and preferential silver redistribution into poly(4-vinylpyridine) block occurred. Rapid heating of semidry film initiated silver reduction, removing of residual solvent and creation of ordered silver array. After polymer removing silver nanoparticles array was tested as a suitable candidate for subdiffraction plasmonic application - surface enhanced Raman scattering (SERS). Enhancement factor was calculated and compared with literature data.

P11) Studying of quantum dots monolayers formation at the different acidity

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Abstract: The main target of this work is a studying of a process of QD monolayer formation at a different subphase acidity. The variation of a acidity has an effect on the electrostatic interaction between surfactant molecules at the high pH and on the dissolution of quantum dots at the low pH values and as a result on a monolayer packaging type. In the present work the process of QD monolayer formation at the subphase acidity of 2,3,7 and 12 were studied by the compression isotherm method and Brewster angle microscopy and transmission electron microscopy. The acidity has an effect on the quantum dots monolayer formation process. So an increasing of the pH value leads to increasing molecule mean area that connected with electrostatic repulsion between ionized surfactant head groups, but a decreasing of the pH value leads to particularly dissolution of quantum dots.

P12) The Structure And Properties Of Fluoropolymer Films Deposition By Hwcvd Method

Authors: Nikolay Timoshenko, Kutateladze Institute Of Thermophysics Of The Siberian Branch Of The Russian Academy Of Sciences, Senior researcher

Abstract: The paper used method HWCVD (Hot Wire Chemical Vapor Deposition) [1,2] for the deposition of thin films a fluoropolymer. The method is the activation of the precursor gas