

- E - P055 INFLUENCE OF THE EXCESS OF PB ON THE MICROSTRUCTURAL PROPERTIES OF LEAD LANTHANUM TITANATE CERAMICS OBTAINED BY COMBUSTION SYNTHESIS
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Lanthanum-modified lead titanate (PLT) has become popular because it possesses interesting properties such as a lower Curie temperature, a lower coercive field, and because of its great potential for nonlinear optical and electro-optical applications. In this work, ferroelectric ceramic powder of lanthanum-modified lead titanate $\text{Pb}_{1-1.5x}\text{La}_x\text{TiO}_3$ (plt), with $x = 0.17, 0.20$ and 0.23 , was prepared by combustion synthesis reaction. An analysis was made to identify the effect produced by the excessive addition of varying concentrations of lead to the precursor mixtures on the microstructural properties of the resulting PLT ceramics. The precursors used here, lead nitrate, lanthanum nitrate, and tetraethylorthotitanate, were weighed according to the desired stoichiometric ratio, mixed with a fuel, and ignited on a preheated hot plate. An X-ray diffraction analysis (XRD) revealed the presence of perovskite and lead oxide phases in all the ceramics obtained. Scanning and transmission electronic microscopy (SEM and TEM) revealed nanometric grains in all the ceramics to which different amounts of excess lead had been added. X-ray photoelectron spectroscopy (XPS) was employed to investigate the surface chemical composition, indicating the presence of La^{3+} , Ti^{4+} , and two Pb species.

- E - P056 ANALYSIS OF THE CRYSTAL STRUCTURE OF COBALT DOPED LANTHANUM CHROMITES
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Lanthanum chromite (LaCrO_3) is one of the materials most suitable for use in solid oxide fuel cells (SOFC), as it is very resistant to oxidant as well as to reducer environments at high temperatures (about 1000°C). It presents an adequate (p-type) electric conductivity at the operation temperatures of SOFC. For this reason, this material may act as a spacer as well as an interconnect, that is, as a receptor and a conductor of electric charge. LaCrO_3 structure is considered to be a pseudo-perovskite, or distorted perovskite. At some temperature between 200 and 2600°C it undergoes a crystallographic transformation from orthorhombic to rhombohedral structure, in which volume change occurs. In the present contribution we present the results of refinements of crystallographic structures of lanthanum chromite doped with cobalt ($\text{LaCr}_{1-y}\text{Co}_y\text{O}_3$, $y = 0.10; 0.15; 0.20; 0.25$). The crystalline structures were analyzed by means of the Rietveld method for structure refinement. The powder X ray diffraction data were obtained from anomalous diffraction at the chromium absorption edge ($E = 5.85 \text{ KeV}$). Samples were synthesized at IPEN (Instituto de Pesquisas Energéticas e Nucleares), in CCTM (Centro de Ciência e Tecnologia de Materiais), by combustion reaction using nitrates and urea as fuels. The X ray diffraction was performed at LNLS (Laboratório Nacional de Luz Síncrotron). Variations on the lattice parameter values caused by partial replacement of cobalt at chromium sites were observed.

- E - P057 THE CHARACTERIZATION OF SnO_2 - FILMS DEPOSITED ON DIFFERENT SUBSTRATES
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In this work, a study of SnO_2 films preparation by the polymeric precursors method was presented. The films were deposited by dip coating on glass and alumina substrates. The samples were prepared controlling the immersion and emersion speed and temperature. The obtained films were characterized by scanning electron microscopy, X-ray diffraction, electrical measurements and absorption spectrum in the UV-Visible region. The resultant film on glass substrate presented a thickness of 0,46 micrometre.

- E – P058 MIXED CONDUCTION MEMBRANES: PANI IN SITU POLYMERIZATION IN SPEEK MATRIX
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Mixed ion and electron conductive ceramic materials, like perovskite, have gained relevance in membrane technology. In this work we describe the preparation and characterization of a mixed



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