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P.132	**Optimization of La_2NiO_4 cathode for SOFC**
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The commercialisation of Solid Oxide Fuel Cells requires stable and cheap components. Although $La_{0.6}Sr_{0.4}Co_{0.2}Fe_{0.8}O_{3-\delta}$ is an excellent cathode material, it suffers from Cr-poisoning by the metallic CroFer interconnect, which has led to a search for Cr-resistant cathode materials. One of the possible candidates is La_2NiO_4 (LNO), a layered compound with high (2-D) ionic conductivity and high surface oxygen exchange rate. The influence of microstructure on the electrode properties are investigated with impedance spectroscopy. Addition of a dense LNO-layer by Pulsed Laser Deposition between electrolyte and the porous, screen printed LNO electrode significantly lowers the electrode polarisation. Interpretation of the impedance analysis indicates that the electronic resistance of the LNO-electrode is a performance limiting factor. It is also evident from the observation of a predominant Gerischer contribution to the impedance of the porous cathodes that surface diffusion of (possibly charged) oxygen species is the main oxygen transport mechanism. The cathode with the 800 nm LNO-PLD layer can be modelled with a previously developed model for a dense layer electrode where the oxygen exchange rate is modified by the porous LNO structure on top of the layer.

P.133	**Electrical Properties Of $Pb(Zr_{0.52}Ti_{0.48})O_3$ Ceramics Measured at High Frequency**
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High planetary mill has been used successfully to produce lead zirconate titanate $Pb(Zr_{0.52}Ti_{0.48})O_3$ using commercial mixtures of PbO, ZrO_2 and TiO_2 powders. The milled powders were studied by X-ray diffraction (XRD) and Scanning Electron Microscope (SEM) for phase formation and microstructure characterization. The X-ray diffraction (XRD) patterns indicate that the perovskite phase of PZT was formed after milled for 40 hours. After samples were sintered at 950 °C for 1 hour, the analysis proved the formation of $Pb(Zr_{0.52}Ti_{0.48})O_3$ single phase. According to SEM results, the grain sizes of the powders have been estimated to be ~200 nm while after sintered a dense and clearly uniform grain size were observed to be about ~2µm. Dielectric properties were measured at frequency range of 1 MHz to 1 GHz. It was found that the dielectric constant of PZT ceramics to be ~7000, meanwhile, the dielectric loss is ~0.04 measured at 1 MHz. Moreover, results also indicate that high planetary mill is an effective technique to improve the sinterability of PZT ceramics where the relative density of sintered samples was measured to be about 99.93% from the theoretical density.

P.134	**Influence of growth conditions on $PbZr_{0.20}Ti_{0.80}O_3$ thin films**
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We report on growth and ferroelectric properties of epitaxial $PbZr_{0.20}Ti_{0.80}O_3$ (001) films. Single phase epitaxial films were grown on vicinal $SrTiO_3$ (001) and $DyScO_3$ (110) substrates with a layer of $SrRuO_3$ as bottom electrode by pulsed laser deposition. In order to investigate the influence of oxygen background pressure on microstructure and