

Lanthanum Strontium Titanate Based Anode Materials for Intermediate Temperature Solid Oxide Fuel Cells

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Abstract : Solid Oxide Fuel Cells (SOFCs) are one of the most attractive electrochemical energy conversion systems, as these devices present a clean energy production, thus promising high efficiencies and low environmental impact. The electrodes are the main components that decisively control the performance of a SOFC. Conventional, anode materials (like Ni-YSZ) are operates at very high temperature. Therefore, cost-effective materials which operate at relatively lower temperatures are still required. In present study, we have synthesized La doped Strontium Titanate via solid state reaction route. The structural, microstructural and density of the pellet have been investigated employing XRD, SEM and Archimedes Principle, respectively. The electrical conductivity of the systems has been determined by impedance spectroscopy techniques. The electrical conductivity of the Lanthanum Strontium Titanate (LST) has been found to be higher than the composite Ni-YSZ system at 700 °C.

Keywords : IT-SOFC, LST, Lanthanum Strontium Titanate, electrical conductivity

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