

Solid oxide fuel cells based on perovskite components for intermediate temperature operation

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A solid oxide fuel cell (SOFC) has been manufactured using a Ni-modified perovskite and perovskite-based electrolyte and cathode. The SOFC has been investigated for operation at intermediate temperatures. In this regard, we have first studied the electrical properties of $\text{La}_{0.8}\text{Sr}_{0.2}\text{Ga}_{0.8}\text{Mg}_{0.2}\text{O}_3$ (LSGM) and gadolinia-doped ceria (GDC) electrolytes and afterwards we have investigated the reliability of the Ni-modified $\text{La}_{0.6}\text{Sr}_{0.4}\text{Fe}_{0.8}\text{Co}_{0.2}\text{O}_3$ based anode operation in combination with LSGM electrolyte and $\text{La}_{0.6}\text{Sr}_{0.4}\text{Fe}_{0.8}\text{Co}_{0.2}\text{O}_3$ (LSFC) cathode. A 50 h electrochemical test for the SOFC operation under different fuel feed is presented to show the fuel-flexibility characteristics of this SOFC structure.