

$\text{La}_{0.85}\text{Sr}_{0.15}\text{Cr}_{0.9}\text{Ni}_{0.1}\text{O}_{3-\delta}\text{Ce}_{0.8}\text{Sm}_{0.2}\text{O}_{1.9}$ 作为SOFC阳极材料的研究

李松丽, 王绍荣, 聂怀文, 王元松, 温廷琰

中国科学院上海硅酸盐研究所, 上海 200050

收稿日期 2005-12-8 修回日期 2006-1-6 网络版发布日期 接受日期

摘要 较低的催化活性大大地限制了 $\text{La}_{0.85}\text{Sr}_{0.15}\text{Cr}_{0.9}\text{Ni}_{0.1}\text{O}_{3-\delta}$ (LSCN)

作为直接碳氢化合物燃料SOFC阳极材料的应用. 本文尝试用Pechini法合成LSCN,并按重量比1:1

向其中加入纳米 $\text{Ce}_{0.8}\text{Sm}_{0.2}\text{O}_{1.9}$ (SDC)作为阳极材料. 经1500℃高温烧结12h后,

LSCN与SDC以及电解质YSZ仍可以保持各自独立的相结构. 加入SDC没能提高阳极的电导率,

但由于改善了阳极电解质界面的结合状况, 扩展了电极反应的活性区域, 使阳极材料的极化性能有了提高.

显微结构观察显示, LSCN-SDC阳极在甲烷气氛中使用时没有碳沉积现象.

关键词 [LSCN-SDC](#) [显微结构](#) [电导率](#) [极化](#)

分类号

$\text{La}_{0.85}\text{Sr}_{0.15}\text{Cr}_{0.9}\text{Ni}_{0.1}\text{O}_{3-\delta}\text{Ce}_{0.8}\text{Sm}_{0.2}\text{O}_{1.9}$ as an Anode Material of SOFC

LI Song-Li, WANG Shao-Rong, NIE Huai-Wen, WANG Yuan-Song, WEN Ting-Lian

Shanghai Institute of Ceramics, Chinese Academy of Sciences, Shanghai 200050, China

Abstract In order to improve the polarization property of LSCN as an anode material of direct-hydrocarbon SOFC, the LSCN powder was mixed with nanometer SDC in weight ratio of 1:1. The conductivity and polarization properties of LSCN-SDC anode in H_2 and CH_4 atmospheres were examined and discussed, relating to the SEM morphologies. The interface structure between the anode and the YSZ electrolyte is obviously modified when nanometer SDC is added. The AC

impedance of the anode with SDC is only tenth of that without SDC, and the polarization property is greatly improved. After polarization test, no carbon species was observed from the microstructure morphology of the LSCN-SDC anode.

Key words [LSCN-SDC](#) [microstructure](#) [conductivity](#) [polarization](#)

DOI:

通讯作者 温廷琰 tlwen@sunm.shcnc.ac.cn

扩展功能

本文信息

▶ [Supporting info](#)

▶ [PDF\(682KB\)](#)

▶ [\[HTML全文\]\(0KB\)](#)

▶ [参考文献](#)

服务与反馈

▶ [把本文推荐给朋友](#)

▶ [加入我的书架](#)

▶ [加入引用管理器](#)

▶ [复制索引](#)

▶ [Email Alert](#)

▶ [文章反馈](#)

▶ [浏览反馈信息](#)

相关信息

▶ [本刊中 包含“LSCN-SDC”的
相关文章](#)

▶ 本文作者相关文章

- [李松丽](#)
- [王绍荣](#)
- [聂怀文](#)
- [王元松](#)
- [温廷琰](#)