Solid Oxide Fuel Cell (SOFC) Materials

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Handbook

Developing materials for SOFC applications is one of the key topics in energy research. The book focuses on manganite structured materials, such as doped lanthanum chromites and lanthanum manganites, which have interesting properties: thermal and chemical stability, mixed ionic and electrical conductivity, electrocatalytic activity, magnetocaloric property and colossal magnetoresistance (CMR).


Publication Date: 2018 (1/15/2018)
182 pages, color print, paperback, USD 110.00
Materials Research Foundations Vol. 23
BISAC Subject Classification code: TEC021000
BIC/Thema Subject Classification code: TGM
Imprint: Materials Research Forum LLC, publisher’s sales rights are Wordwide
Product Form: bc

Summary:

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These materials have applications in solid oxide fuel cells, high temperature NOx sensors, hard disk read heads, magnetic sensors and magnetoresistive random access memories.

For the first time, the charge density distributions have been studied in these materials as synthesized by high temperature solid state reaction. Charge density analysis is helpful in understanding the physical and chemical properties of materials and in developing optimized structures. The morphological, elemental, optical and magnetic properties of the materials have also been studied.