OAK RIDGE NATIONAL LABORATORY
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Strain-Induced Activity Enhancement for Oxygen Reduction Reaction Catalysis and Oxygen Ion Transport

Disclosure Number

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Technology Summary

The present invention is directed to strained oxide materials and various fabrication methods, which have been demonstrated to have increase catalytic activity for oxygen reduction reactions (ORR) and also potentially enhance oxygen ion transport. These materials have been tested in the lab and shown to have surface exchange rates for ORR that is 10-1000 times higher than conventional bulk oxide materials. Strain-induced oxide materials can be used in electrochemical energy conversion devices, such as fuel cells, and as membranes for oxygen gas separation in oxyfuel combustion systems.

Inventor

CHRISTEN, HANS M

Materials Science and Technology Div

Licensing Contact

SIMS, DAVID L
UT-Battelle, LLC
Oak Ridge National Laboratory
Rm 124C, Bldg 4500N, MS: 6196
1 Bethel Valley Road
Oak Ridge, TN 37831

Office Phone: (865) 241-3808
E-mail: SIMSDL@ORNL.GOV