

J. David Carter

Argonne National Laboratory
Chemical Sciences and Engineering Division
9700 South Cass Avenue, Building 205
Argonne, IL 60439-4837
phone: 630/252-4544, fax: 630/972-4544
Email: jdavidcarter@anl.gov

Professional Experience

- **1996-Present.** Materials Engineer, Argonne National Laboratory. Electrochemical Ceramics Group Leader, supporting solid oxide fuel cell (SOFC) development for the Solid State Energy Conversion Alliance and high temperature steam electrolysis (Nuclear Hydrogen Initiative).
- **1994-1996.** Postdoctorate, Argonne National Laboratory
- **1992-1994.** Visiting Scientist, Risoe National Laboratory
- **1987-1988.** Lab Technician, Ceramatec Inc.

Education

- PhD, Ceramic Engineering, University of Missouri-Rolla, 1989
- MS, Ceramic Engineering, University of Missouri-Rolla, 1992
- BS, Material Science and Engineering, University of Utah, 1988

Awards

- Excellence in Technology Transfer Federal Laboratory Consortium for Technology Transfer (2002)
- R&D 100 Award, Autothermal catalyst development for reforming hydrocarbon fuels to hydrogen (2001)
- National Laboratory Fuel Cell R&D Award (2000)

Career Activities & Highlights

- Analyzed degradation of solid oxide electrolysis stack components using X-ray mapping, X-ray absorption near edge spectroscopy (XANES), scanning electron microscopy (SEM) analysis, Raman spectroscopy and 4-point probe
- Technical advisor of Initiative for Proliferation Prevention projects-working with Praxair and Ceramatec as industry partners and scientists at former Russian and Ukrainian weapons laboratories
- Co-developed first *in situ* study of lanthanum manganite air electrodes using X-ray reflectivity and XANES
- Invented TuffCell, a metal supported SOFC stack repeat unit
- Developed reforming and water gas shift catalysts to produce hydrogen from hydrocarbons

- Co-developed anode-supported SOFC with a record performance 350 mA/cm² at 450 mV and 500°C
- Developed anode-supported thin film SOFC
- Developed tape casting, screen printing, and gel casting processes for SOFC fabrication

Publications, Presentations & Patents

- 60+ technical publications and presentations
- 10 patents