

BIOGRAPHICAL SKETCH

Nina A. Orlovskaya

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Professional Preparation

Ph.D. Materials Science, Ukrainian Academy of Sciences, Ukraine, 1993
M.S. Ceramics, Kiev Polytechnic Institute, Ukraine, 1984

Fellowships

Norwegian University of Science and Technology, Norway

1998 - 1999 NATO/Norwegian Research Council Fellowship

University of Illinois at Chicago, USA

1998 National Research Council, COBASE Fellowship

University of Vienna, Austria

1995, 1996-1997 Austrian Technical (OEAD) Fellowship

Technical University of Hamburg-Harburg, Germany

1996 DAAD Fellowship

Work History

University of Central Florida

December 2006 – current Assistant Professor

Michigan Technological University

2006 – December 2006 Assistant Professor

Drexel University

2000 – 2005 Research Assistant Professor

University of Illinois at Chicago

1999 - 2000 Research Engineer

Institute for Materials Science, Academy of Sciences of Ukraine, Kiev, Ukraine

1984 - 1998 Research Associate, Senior Research Associate

Research Interests

- Solid Oxide Fuel Cells
- Perovskite Membrane Reactors
- Residual Stresses in Ceramic Laminates
- Materials for Energy Security
- Nonelastic Ferroelastic Behavior of Ceramics
- *In situ* Raman spectroscopy, SEM, TEM, XRD

Professional Activities

NSF, PRF proposal reviewer and NSF panel reviewer

Guest Editor of a special issue of ceramic laminates in *Composites B Engineering*, 2006

Director of NATO ARW “*Mixed Ionic Electronic Conducting Perovskites for Advanced Energy Systems*”, Kiev, Ukraine, June 2003.

Member of Organizing Committee:

NATO ARW on Multilayered and Fiber-Reinforced Composites, Kiev, Ukraine, 1997.

NATO ARW on Fuel Cells: State and Prospective, Kiev, Ukraine, 2004.

Member:

American Ceramic Society, Materials Research Society

Professional Awards

2007 *Royal Society US Travel Award*
1998, 1999, 2000 *NATO Expert in High Technology Area*
1993 *American Physical Society award for young researcher from the former Soviet Union*

Recent Relevant Publications

1. Mixed Ionic Electronic Conducting Perovskites for Advanced Energy Systems, Eds. N. Orlovskaya, N. Browning, Kluwer Academic Publishers, pp.315, 2004.
2. Johnson, C., Gemmen, R., Poston, J., Schaeffer, C., Orlovskaya, N., Fegely, L., Rawn, C., Perovskite based protective coatings for Solid Oxide Fuel Cell metallic interconnects, Proceeding of Ninth International Meeting of Solid Oxide Fuel Cells, Quebec City, 1842-1850, 2005.
3. Tangtrakarn, N., Swanson, M., Moran, P., Kuebler, J., Kapat, J., Orlovskaya, N., Sintering behaviour and phase characterization of composite perovskite/fluorite ceramics for Intermediate temperature SOFCs and oxygen separation membranes, in *Solid-State Ionics*, edited by E. Traversa, T. Armstrong, C. Masquelier, and Y. Sadaoka (Mater. Res. Soc. Symp. Proc.972, Warrendale, PA, 2007), 0972-AA03-07.
4. Orlovskaya, N., Coratolo, A., Lugovy, M., Johnson, C., Gemmen, R., Structural evolution of La-Cr-O thin films: Part I. Microstructure and phase development, *Thin Solid Films*, 515, 1741-1747, 2006.
5. Lugovy, M., Coratolo, A., Orlovskaya, N., Johnson, C., Gemmen, R., Structural evolution of La-Cr-O thin films: Part II. Elasto-plastic properties by nanoindentation, *Thin Solid Films*, 515, 2847-2853, 2007.
6. Coratolo, A., Orlovskaya, N., Johnson, C., Gemmen, R., Structural evolution of $\text{La}_{0.9}\text{Sr}_{0.1}\text{Cr}_{0.9}\text{Co}_{0.1}\text{O}_3$ thin films for SOFCs and catalysis, *Nanoparticles and Nanostructures in Sensors and Catalysis*, edited by Chuan-Jian Zhong, Nicholas A. Kotov, Wayne Daniell, Francis P. Zamborini (Mater. Res. Soc. Symp. Proc. 900E, Warrendale, PA, 2006), 0900-O06-27.1.
7. Orlovskaya, N., Steinmetz, D., Yarmolenko, S., Pai, D., Sankar, J., Goodenough, J., Detection of temperature and stress induced modifications of LaCoO_3 by micro-Raman spectroscopy, *Phys. Rev. B*, 72, 014122-1-7, 2005.
8. Orlovskaya, N., Steinmetz, D., Raman diagnostics of LaCoO_3 based perovskites, in book "Mixed ionic electronic conducting perovskites for advanced energy systems", Eds. Orlovskaya, N., and Browning, N., Kluwer Academic Publishers, p. 37-49, 2004.
9. Orlovskaya, N., Coratolo, A., Johnson, C., Gemmen, R., Characterization of LaCrO_3 perovskite coating deposited by magnetron sputtering on an iron based chromium containing alloy, *J. Am. Ceram. Soc.*, 87, 10, 1981-1987, 2004.
10. Johnson, C., Gemmen, R., Orlovskaya, N., Nanostructured self-assembled LaCrO_3 thin film deposited by RF magnetron sputtering on a stainless steel interconnect material, *Composites, Part B: Engineering*, 35, 2, 167-172, 2004.

Graduate Students, PostDocs

Svetlana Lukich, PhD, Priyank Patel, MS, Deanna Altilio, PhD; Matthew Swanson, PhD, Siddhartha Pathak, PhD, Anthony Coratolo, MS, David Steinmetz, BS/MS, Rachel Rosten, BS/MS, Allen Hunter, BS/MS, Mykola Lugovy, Post Doc

Collaborators in the Last 48 Months

M. Radovic, University of A&M Texas, P. Moran, Michigan Tech, J. Sankar, North Carolina A&T State University, L. Allard, E. Lara-Curzio, Oak Ridge National Laboratory, N. Browning, University of California, Davis, C. Johnson, R. Gemmen, National Energy Technology Lab, M. Barsoum, Y. Gogotsi, W. Shih, S. Guceri, G. Friedman Drexel University, A. Nicholls, University of Illinois at Chicago.