

**MATERIALS RESEARCH SOCIETY
SYMPOSIUM PROCEEDINGS VOLUME 1122**

Structure/Property Relationships in Fluorite-Derivative Compounds

December 1-5, 2008
Boston, Massachusetts, USA

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571
www.proceedings.com

ISBN: 978-1-61567-762-7

Some format issues inherent in the e-media version may also appear in this print version.

Copyright (2008) by the Materials Research Society.
All rights reserved.

For permission requests, please contact the Materials Research Society at the address below.

Materials Research Society
Proceedings
506 Keystone Dr.
Warrendale, PA 15086
Phone: 724-779-3004 x 531
Fax: 724-779-4396
eproceedings@mrs.org

TABLE OF CONTENTS

Hydrogen Ordering and Metal-Semiconductor Transitions in Rare-earth Hydrides.....	1
<i>P. Vajda</i>	
Fluorite and Pyrochlore Phases in the HfO₂ -La₂O₃ -Gd₂O₃ Systems: Characterization and Calorimetric Study of Samples Quenched From Melts Formed by Laser Heating and Aerodynamic Levitation	11
<i>S.V. Ushakov, A. Navrotsky, J.A. Tangeman</i>	
Optical Properties and Thermal Effects in CaSZ and YSZ Single Crystal by Raman Scattering, Photoluminescence and Absorption Spectroscopy	17
<i>D.I. Torres, J. Llopis</i>	
Oxygen Vacancy Migration in CSZ Using Density Functional Theory.....	24
<i>B. Lee, D. Kim, Y. Kim</i>	
Mechanosynthesis, Radiation-Thermal Modification and Characterization of Nanostructured Scandia Stabilized Zirconia Ceramics.....	29
<i>V.V. Zyryanov, N.F. Uvarov, A.S. Ulrich, V.A. Sadykov</i>	
Real Structure - Oxygen Mobility Relationship in Nanocrystalline Doped Ceria-Zirconia Fluorite-Like Solid Solutions Promoted by Pt.....	35
<i>V. Sadykov, N. Mezentseva, V. Muzykantov, D. Efremov, E. Gubanova, N. Sazonova, A. Bobin, E. Paukshtis, A. Ishchenko, V. Voronin, J. Ross, C. Mirodatos, A. Van Veen</i>	
Ionic Conductivity in Nanocrystalline Gd Doped Ceria	41
<i>G. Baldinozzi, D. Simeone, D. Gosset, M. Dolle, G. Petot-Ervas</i>	
Ion Irradiation of Ternary Pyrochlores.....	47
<i>K.R. Whittle, K.L. Smith, M.G. Blackford, S.A.T. Redfern, E.J. Harvey, N.J. Zaluzec, G.R. Lumpkin</i>	
On the Characterisation of Order-Disorder in Ion-Irradiated Pyrochlore Compounds by Electron Scattering Methods	53
<i>G.R. Lumpkin, K.R. Whittle, M.G. Blackford, K.L. Smith, N.J. Zaluzec</i>	
Study of Defects and Structural Transformations Induced by Ion Irradiation of Y₂O₃ Thin Films Deposited by Ion Beam Sputtering.....	59
<i>B. Lacroix, F. Paumier, M. Jublot, J. Pacaud, R.J. Gaboriaud</i>	
Pyrochlore to Fluorite Transitions – Ordering in Fluorites?	65
<i>K.R. Whittle, L.M. Cranswick, S.A.T. Redfern, I.P. Swainson, G.R. Lumpkin</i>	
Surface Energetics of Nanocrystalline YSZ Powders.....	71
<i>G.C.C. Costa, S.V. Ushakov, A. Navrotsky, R. Muccillo</i>	
Fluorites: Superionics and Conduction Processes	76
<i>S. Hull</i>	
Author Index	