Conference Tools for Materials Science & Technology 2013

Login  Register as a New User  Help  Submit An Abstract  Propose A Symposium  Propose A Proceedings  Presenter/Author Tools  Organizer/Editor Tools

About this Abstract

Meeting  Materials Science & Technology 2013  
Symposium  International Symposium on Defects, Transport and Related Phenomena  
Presentation Title  Charge Transport in Yttria Stabilized Zirconia (YSZ), Strontium Titanate (STO) and Lead Zirconate Titanate (PZT): News from Old Acquaintances  
Author(s)  Juergen Fleig  
On-Site Speaker (Planned)  Juergen Fleig  

Abstract Scope

Yttria stabilized zirconia (YSZ) is an important oxide conductor but its temperature dependent ionic conductivity still raises questions. It is discussed, which model is best suited for quantifying and interpreting this temperature dependence. Moreover, the ambiguity of the conductivity and its dependence on heat pre-treatment is analyzed. 

SrTiO3 (STO) is an often investigated perovskite-type oxide but still yields unexpected results. Among others, inductive loops are found in bias dependent impedance experiments on STO thin films and a strong dependence of the ionic conductivity on annealing was measured by 18O tracer studies. Lead zirconate titanate (PZT) is an important ferroelectric oxide but its defect chemistry is much less addressed than that of STO. Several novel aspects of charge transport in PZT will be discussed, including hole conduction despite nominal donor doping and a field induced failure mechanism with silver ion transport in PZT and anodic silver precipitates.

Proceedings Inclusion?  Undecided

OTHER PAPERS PLANNED FOR THIS SYMPOSIUM

A High-temperature Mössbauer Study of Iron-doped Ruddlesden-popper Phases La_{1-x}Ni_{x}O_{3n+1}, (n=1,3)  
Activation Volume Tensor for Oxygen Vacancy Migration in Strained CeO2 Electrolytes
Anion and Cation Diffusion in Complex Oxides
Atomic Scale Manipulation of Grain Boundary Structures through Doping and In Situ Gas Reduction
Can the Kröger-Vink Approach Be Extended to Amorphous Oxides?
Charge Transport in Yttria Stabilized Zirconia (YSZ), Strontium Titanate (STO) and Lead Zirconate Titanate (PZT): News from Old Acquaintances
Co-doped La_{0.85}Sr_{0.15}Cr_{1-2y}Ni_{y}Ti_{y}O_{3} Mixed Ionic-electronic Conducting Perovskite for High Temperature Electrochemical Devices
Computational Studies on Oxygen-ion Conduction in Rare-earth-based Oxides Based on Density Functional Theory
Defects and Transport in Oxides: Some Questions and Possible Answers
Effect of Additives on Diffusion Processes in UO2
Electrochemical Oxygen Reduction Reaction on an Oxide Ion Conductor Investigated by In Situ X-ray Absorption Spectroscopy
Electronic and Optical Properties of Ga_{3-x}In_{x}Sn_{2}O_{16}: An Experimental and Theoretical Investigation of a Novel N-type Transparent Conductor
Electrostrictive Gd-doped Ceria: Effect of Composition
Evaluating Association Energies of Defect Complexes in Perovskite Materials from In Situ EPR Techniques Using a Statistical Mechanics Approach
Experimental Evaluation of Oxygen Nonstoichiometry under a Mechanical Stress
First Principles Calculations of Defect Chemistry of Doped BaZrO3, Systems
In Situ Polarization of GDC Thin Film Using SR-hard X-ray PES
Inverse Design of Li-doped Cr0.5Mn0.5 as a Novel p-Type Transparent Conductor
Ion-electron to Ion-ion Ambipolar Coupling Transition and Chemical Diffusion in Mixed Oxide-ionic, Protonic Electronic Mixed Conductors
Nanosize Effects in the Conductivity of Epitaxial Ceria Thin Films
Nonstoichiometric Oxides Surfaces Far from Equilibrium
Oxides with Crystallographic Shear Defects – Potential Thermoelectric Materials?
Oxygen-vacancy Transport in Heavily Doped Cubic Zirconia: Results from Combined NMR and Electrochemical Impedance Spectroscopies
Oxygen Diffusion in Single Crystal and Bicrystal SrTiO3
Oxygen Exchange Kinetics on SOFC Cathode Materials: Importance of Ionic and Electronic Carriers
Phase Relationships in the Quasi-ternary LaO_{1-x}SiO_{x}–MgO System at 1773K
Roles of Schottky Barrier and Oxygen Vacancies in the Resistive Switching of Perovskite Oxides
Synthesis and Structural Characteristics of p-Type Semiconducting CuBi2O4 as a New Gas Sensor Material
The Current-voltage Characteristics of Grain Boundaries in Ionic Conductors: Interpretation with a New Model
The Effects of Niobium Doping and pO2 on the Thermoelectric Properties of Beta Gallia Rutile Intergrowths
The Role of A-site Defects in Thermoelectrics Based on SrTiO3
The Role of Line Defects on the Conductivity of Thin-film Yttria-stabilized Zirconia
Ab Initio Investigation of Oxygen Vacancy Migration in Alkaline-earth Doped Monoclinic Lanthanum Germanate

Questions about ProgramMaster? Contact programming@programmaster.org