Grand Technion Energy Program
תוכנית האנרגיה ע"ש גרנד

Technion Israel Institute of Technology

תכנית האנרגיה ע"ש גרנד מתכבדת להזמינך להרצאה סמינריונית שתינתן ע"י:

נטע שמרת

התכנית הבין-יחידתית לאנרגיה

בנושא:

The Influence of Non-Stoichiometry and Doping on Flash Sintering of Oxide Perovskite

The ternary oxide perovskites, $A^{+\alpha}B^{+\beta}O_3$, exhibit many interesting theoretical aspects and applications. Non- Stoichiometry in perovskites can result from oxygen loss and/or when the ions A/B ratio deviates from unity. The second can be caused by inaccuracy of initial compositions or vaporization of different compounds during high temperature processes such as calcination and sintering. This work includes both theoretical aspects regarding non-stoichiometry perovskites and a practical solution, flash sintering technique, to the unstable nature and stoichiometric deviation of alkali- niobate perovskite. Flash sintering is a novel promising technique that its mechanism is not completely understood. Thus, a dynamic heat balance simulation predicting the onset conditions was compared to flash sintering experimental results of iron doped strontium titanate (STFO). The contribution of point defects to flash mechanism in STFO was studied by electrical measurements at different oxygen partial pressures and impedance spectroscopy analysis of green body ceramic.

מנחה: פרופ"ח יועד צור, הפקולטה להנדסה כימית

במסגרת עבודת מחקר לתואר דוקטור

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