



RESEARCH FOCUS ON DR. LUIZ JACOBSOHN

Luminescence is present in our daily life, from electronic screens and lighting to medical imaging, to name a few applications. It affects our lives in many aspects, from energy conservation and health to security, science and technology. Luminescence can be generated in several ways, and particularly by ionizing radiation. Likewise, luminescent materials are used for the detection and measurement of ionizing radiation, e.g., scintillators and dosimeters. The performance of these materials is related, among other things, to the presence of electronic traps that correspond to localized energy levels within the band gap generated by defects like vacancies, interstitials, impurities, etc. In the case of scintillators, the presence of traps is highly detrimental while they are essential for the functioning of thermoluminescent dosimeters.

This project aims at creating the basis for the engineering of electronic traps in luminescent materials to guide discovery,

PROJECT TITLE

NSF CAREER: Towards Engineering Electronic Defects in Inorganic Luminescent Materials

AIM

This project is the first comprehensive investigation that relates characteristics of luminescent materials such as chemical composition and crystallographic structure to the specific characteristics of electronic traps.

AWARD ABSTRACT

https://www.nsf.gov/awardsearch/showAward?AWD_ID=1653016

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create functionality, and enhance performance of dosimeters and scintillators. The broader impacts of this project include the development of resources and strategies to incorporate fundamental concepts of materials science and engineering into science classes in high schools in South Carolina, and the increase of awareness of materials science and engineering as a relevant and attractive professional path to high school and undergraduate students.

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