



**ROSS GROUP DISTINGUISHED SPEAKER**  
**SCHOOL OF MATERIALS SCIENCE**  
**AND ENGINEERING**  
**OKLAHOMA STATE UNIVERSITY**

**ELECTRONIC AND OPTICAL MATERIALS SCIENCE AND  
ENGINEERING AT SANDIA NATIONAL LABORATORIES**



**RYAN P. HAGGERTY, PHD**  
**ELECTRONIC, OPTICAL & NANO MATERIALS DEPARTMENT**  
**MATERIAL, PHYSICAL AND CHEMICAL SCIENCES CENTER**  
**SANDIA NATIONAL LABORATORIES**

**Wed, Nov 13, 2019, 11:00–12:00 PM**  
**Room 153, Helmerich Research Center**  
**Oklahoma State University**  
**526 North Elgin Ave, Tulsa, OK 74106**

**ABSTRACT**

Born out of the Manhattan Project, Sandia National Laboratories has a long history of innovation in materials science and engineering to meet mission critical needs. Sandia's core mission is to advance technology to ensure global peace. With such broad aspirations, Sandia must utilize extensive facilities to create and analyze novel materials to produce innovative electronic and optical material solutions for a variety of applications. To support our energy security goals Sandia is producing lower temperature sodium batteries for grid scale storage. To reduce the price of NH<sub>3</sub> and thus make fertilizer less expensive, Sandia is producing novel catalysts to reduce the temperature of nitrogen reduction reactions. For global access to clean water, Sandia is developing chlorine tolerant graphene oxide desalination membranes. Sandia also drives towards fundamental understanding of novel materials like metamaterials for better optical detectors or thermal sprayed coatings for environmental protection. An overview of Sandia's work in these areas and more will be presented as well as opportunities at Sandia for students and collaboration.

Sandia National Laboratories is a multimission laboratory managed and operated by National Technology and Engineering Solutions of Sandia, LLC., a wholly owned subsidiary of Honeywell International, Inc., for the U.S. Department of Energy's National Nuclear Security Administration under contract DE-NA0003525.

**SPEAKER**

Ryan Haggerty manages the Electronic, Optical and Nano Materials department at Sandia National Laboratory's Center for Material, Physical and Chemical Sciences. With the primary goal of developing innovative materials for national security needs, Ryan leads an interdisciplinary team of scientists and engineers that constantly pivot across broad areas of materials science. Additionally, Ryan is the program manager for Sandia's efforts in archiving and accessing Sandia's Nuclear Weapons programs through the National Nuclear Security Administration's engineering campaigns. As a ceramics engineer, Ryan previously served as Sandia's subject matter expert for ferroelectric power supplies and glass to metal seals. He graduated with his PhD in Materials Science and Engineering and a MS in Systems and Entrepreneurial Engineering from University of Illinois Urbana-Champaign and received his BS in Chemical Engineering from University of California at Santa Barbara.



**REFRESHMENTS SPONSORED BY THE  
OKLAHOMA STATE UNIVERSITY CHAPTER  
OF THE MATERIALS RESEARCH SOCIETY**

