

Opportunity Title: Computational Materials Scientist – Digital Twin Superheater
Steam Boiler-PGRP

Opportunity Reference Code: NETL-2018-PGRP-Holcomb-1

Organization National Energy Technology Laboratory (NETL)

Reference Code NETL-2018-PGRP-Holcomb-1

How to Apply A complete application consists of:

- An application
- Transcripts – [Click here for detailed information about acceptable transcripts](#)
- A current resume/CV, including academic history, employment history, relevant experiences, and publication list
- Two educational or professional references

All documents must be in English or include an official English translation.

If you have questions, send an email to NETLadmin@ora.u.org. Please include the reference code for this opportunity in your email.

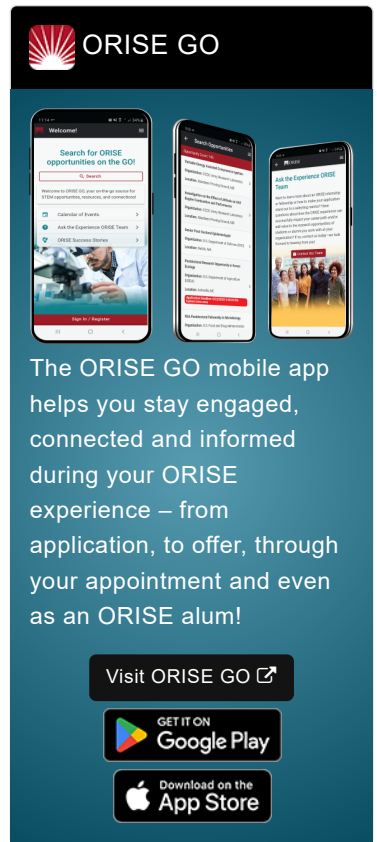
Application Deadline 3/31/2019 11:59:00 PM Eastern Time Zone

Description This research opportunity seeks motivated post-graduates (PhD) interested in teaming up with the Structural Materials and Computational Materials Engineering Teams at NETL which conduct research to evaluate environmental impacts and risk assessments associated with domestic energy resource development and sustainability. Conventional subcritical and supercritical steam boilers that were designed for base load power generation are increasingly operated in conjunction with intermittent renewables. This results in more temperature and pressure cycles than envisioned, and can result in premature boiler tube failures. This research opportunity is to develop a digital twin model of superheater and reheater steam boiler components as a framework to combine 1) design, fabrication, and repair history, 2) sensor and operation inputs, and 3) computational models of oxide growth and spallation. All to predict oxide spallation events and to prevent boiler tube failures. There are also opportunities to develop machine learning processes to improve the usefulness of the digital twin.

Qualifications Applicants should have demonstrated skill in programming, digital twins, machine learning, communications and teamwork. The successful candidate will possess excellent verbal and written English communication skills, and have demonstrable experience completing research in a collaborative/team environment, as well as ability to represent NETL effectively in conferences and publish research findings in peer-reviewed journals.


- Eligibility Requirements**
- **Degree:** Any degree .
 - **Discipline(s):**
 - **Chemistry and Materials Sciences** ([12](#))
 - **Communications and Graphics Design** ([2](#))
 - **Computer, Information, and Data Sciences** ([16](#))
 - **Earth and Geosciences** ([21](#))
 - **Engineering** ([27](#))


 **OAK RIDGE INSTITUTE**
FOR SCIENCE AND EDUCATION




ORISE GO

The ORISE GO mobile app helps you stay engaged, connected and informed during your ORISE experience – from application, to offer, through your appointment and even as an ORISE alum!

Visit ORISE GO 

GET IT ON
 Google Play

Download on the
 App Store

Opportunity Title: Computational Materials Scientist – Digital Twin Superheater

Steam Boiler-PGRP

Opportunity Reference Code: NETL-2018-PGRP-Holcomb-1

- **Environmental and Marine Sciences** ([14](#))
- **Life Health and Medical Sciences** ([45](#))
- **Mathematics and Statistics** ([10](#))
- **Other Non-Science & Engineering** ([2](#))
- **Physics** ([16](#))
- **Science & Engineering-related** ([1](#))
- **Social and Behavioral Sciences** ([27](#))

Affirmation I certify that I:

- Have an earned or will receive a doctoral or master's degree by appointment start date.

OR

- Have received the degree no more than three years before the date of application (postmasters' applicants).

OR

- Have received the degree no more than five years before the date of application (postdoctoral applicants).