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| **TITLE:** | Computational Materials Scientist – Digital Twin Superheater Steam Boiler |
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| **DEPARTMENT:** | U.S. Department of Energy/National Energy Technology Laboratory (NETL) |
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| **NETL CONTACT:** | Gordon Holcomb; Gordon.holcomb@netl.doe.gov |
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| **DUTY LOCATION:** | Albany, OR |

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| **ACADEMIC LEVEL:** | **x** | PhD |  | MS |  | BS |  | Undergrad |  | Faculty |

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| **POSITION**  **INFORMATION:** | 1-year appointment; full time (40 hours per week) with the possibility of extension |
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| **CLOSING DATE:** | 3/31/2019 |
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| **WHO MAY BE**  **CONSIDERED:** | United States Citizens, LPRs, & Foreign Nationals with appropriate approval which includes F-1 OPT with EAD (STEM extension not valid), J-1 Exchange Visitor, and LPR with EAD |

**SUMMARY:**

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.

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.

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| **KEY REQUIREMENTS:**   * Must hold PhD degree from an accredited institution in a field appropriate for the applicant’s area of expertise. * Knowledge of materials science and steam boiler operations is preferred, but not required. * Suitable for Federal employment, as determined by background investigation. |  |

**HOW TO APPLY:**

Applicants should apply through the Oak Ridge Institute for Science and Education (ORISE) program. The ORISE program provides opportunities for undergraduate students, recent graduates, graduate students, postdoctoral researchers, and faculty researchers to apply classroom knowledge in a real-world setting to learn about NETL Research and Innovation Center’s (R&IC) core mission areas.

* Interested applicants should complete the online application at <http://www.orau.gov/netl/>. For questions or issues, please email both [Terry.Howard@orau.org](mailto:Terry.Howard@orau.org) and [Kerri.Fomby@orau.org](mailto:Kerri.Fomby@orau.org) .
* In the online application **list** **Gordon Holcomb as your requested mentor.** This will associate your application with this posting. Please send a CV to [Gordon.holcomb@netl.doe.gov](mailto:Gordon.holcomb@netl.doe.gov).
* If you have additional questions please contact Patricia Adkins-Coliane, [Patricia.adkins-coliane@netl.doe.gov](mailto:Patricia.adkins-coliane@netl.doe.gov), who is the NETL Graduate Education Program Manager.