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| **TITLE:** | Materials Science and Engineering |
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| **DEPARTMENT:** | U.S. Department of Energy/National Energy Technology Laboratory (NETL) |
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| **NETL CONTACT:** | Omer Dogan; omer.dogan@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:** | 5/31/2019 |
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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:**

Through the Oak Ridge Institute for Science and Education (ORISE) this posting seeks motivated post-graduates (PhD) interested in performing research as a part of Structural Materials Team at NETL which evaluates environmental impacts and risk assessments associated with domestic energy resource development. The post-graduate research discussed in this posting pertains to materials performance in supercritical carbon dioxide (sCO2) environments at high temperatures.

Interest in power generation using sCO2 cycles has increased in recent years due primarily to higher efficiencies. The sCO2 power cycles rely heavily on heat recuperation. For this, compact heat exchangers are proposed to reduce equipment size and enhance heat transfer between heat source and sCO2. The heat exchanger architectures are typically formed by joining processes such as diffusion bonding, welding, or brazing. Effect of sCO2 environment on the mechanical and chemical stability of joined advanced alloys is being investigated and as a part of the research group the selected applicant is expected to contribute to this research.

Applicants should have demonstrated background to relate joining process parameters to resulting microstructures and properties. They are expected to have the ability to characterize general mechanical behavior and deformation mechanisms (e.g., SEM/TEM) as well as to relate this behavior to microstructural features that may affect or control failure mechanisms.

**KEY REQUIREMENTS**

* The selected applicant will have excellent verbal and written English communication skills as well as ability to represent NETL effectively in conferences and publish research findings in peer-reviewed journals.
* Must hold PhD degree in Materials Science, or a related field from an accredited institution
* Excellent background in physical metallurgy
* Self-motivated and independent.

**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.zintellect.com. For questions or issues, please email [NETLadmin@orau.org](mailto:NETLadmin@orau.org).
* In the online application, **list** **Omer Dogan** **as your requested mentor.** This will associate your application with this research opportunity. Please send a CV to [omer.dogan@netl.doe.gov](mailto:omer.dogan@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.

The participant(s) will be assigned to the program solely for the educational benefit it provides. The assigned project should not include activities that are reserved for federal employees nor should it require a participant to perform inherently governmental functions such as: supervise or mentor federal employees or federal contractor staff, hire or fire anyone; have budget, program management, or signature authority; carry an official job title; or function in any way as a representative of the federal government.