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| **TITLE:** | Fluidization Research Engineer |
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| **DEPARTMENT:** | U.S. Department of Energy/National Energy Technology Laboratory (NETL) |
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| **NETL CONTACT:** | Samuel Bayham, samuel.bayham@netl.doe.gov |
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| **DUTY LOCATION:** | Morgantown, WV |

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| **ACADEMIC LEVEL:** | **x** | PhD | **X** | 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:** | October 1, 2018 |
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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:**

NETL is a multi-disciplinary, scientific and technical-oriented U.S. Department of Energy National Laboratory. NETL is developing innovative technology solutions to the nation’s energy challenges through effective resource development, efficient energy conversion and responsible stewardship of the environment. NETL is exercising its world-class capabilities in fossil energy science and engineering to enhance America’s future.

The successful candidate will support the Thermal Sciences Team within the Energy Conversion Engineering Directorate for the Research and Innovatin Center.

The successful candidate will study the mechanical degradation of oxygen carrier materials at room-temperature and high-temperature for chemical looping combustion applications. This will involve collecting data from experimental units, such as a particle impact device, a modified ASTM 5757 device, and a fluidized bed reactor. The successful candidate will use the data collected from this unit to develop or refine unit operation-specific mechanical attrition models. In the fluidized bed, the effect of gas distributor design (e.g., bubble caps, perforated plate, etc.) will be studied. They will also perform post analysis on the materials, such as SEM or particle size distribution, to study the effects of the particle velocity upon impact, the gas jet velocity, and bubbles on the oxygen carrier or catalyst. With that, the candidate will apply the knowledge of fluidized bed hydrodynamics to further develop the mechanical attrition models and apply them to real bubbling fluidized bed or circulating fluidized bed systems, particularly for chemical looping combustion. A PhD in chemical engineering, mechanical engineering, or a closely related discipline is required. A strong background in experimental research is required. A background in population balance modeling as well as fluency in the programming language Python is a plus.

**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’s 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** **Samuel Bayham as your requested mentor.** This will associate your application with this research opportunity. Please send a CV to [samuel.bayham@netl.doe.gov](mailto:samuel.bayham@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.