|  |  |
| --- | --- |
| **TITLE:** | Post-Graduate Combustion Engineer/Scientist Research Fellowship |
|  |  |
| **DEPARTMENT:** | U.S. Department of Energy/National Energy Technology Laboratory (NETL) |
|  |  |
| **NETL CONTACT:** | Don Ferguson, e-mail: donald.ferguson@netl.doe.gov |
|  |  |
| **DUTY LOCATION:** | Morgantown, WV |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **ACADEMIC LEVEL:** | **X** | PhD | **X** | MS |  | BS |  | Undergrad |  | Faculty |

|  |  |
| --- | --- |
| **POSITION**  **INFORMATION:** | 1-year appointment; full time (40 hours per week) with the possibility of extension |
|  |  |
| **CLOSING DATE:** | September 1, 2019 |
|  |  |
| **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:**

A graduate student or post-doctoral researcher is sought for a position in Morgantown, West Virginia at the National Energy Technology Laboratory - the U.S. Department of Energy’s primary lab supporting fossil fuel-based energy research.  An ideal candidate will have demonstrated completion of coursework pursuant to a Master’s or PhD in science or engineering. The candidate will research for a period of 1 year, with the possibility of extending that appointment (up to five years).  The candidate will research collaboratively with NETL Federal Research Scientists in the following area:

*Experimental study of pressure-gain combustion through detonation*.  The candidate will assist in the development and testing of a bench scale detonation-based combustion test facility and adjacent shock tube. Pressure gain combustion through detonation technologies such as Rotating Detonation Combustion (RDC) offers the potential for significant efficiency gains when used as a replacement for conventional constant pressure combustion in a Gas Turbine Engine or Direct Power Extraction. The candidate will be expected to assist with design and installation of the experimental facility, conduct day-to-day testing, and perform detailed analysis of time dependent measurements (pressure, temperature, ion, thin-film heat flux) as well as digital image processing and advanced laser diagnostics (i.e. Tunable Diode Laser Absorption Spectroscopy). Relevant concepts include shock wave dynamics, high speed fluid dynamics, jet mixing, combustion, heat transfer, mechanical design and data acquisition / instrument control. The candidate will also be expected to disseminate the research by preparing and presenting technical papers and reports.

An ideal candidate will have expertise in experimental combustion and fluid mechanics, heat transfer and thermodynamics, specifically with application to highly dynamic environments. A working understanding of experimental data acquisitions using commercial software applications such as National Instruments LabView is required. Experience with analysis and reduction of experimental data including image processing is desirable using Mathworks MATLAB or Python. The candidate must have good oral and written skills to enable communication of the research to the scientific and technical communities. Interested candidates may contact Dr. Don Ferguson (donald.ferguson@netl.doe.gov) directly with a current CV at the earliest opportunity**.**

**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** **Don Ferguson as your requested mentor.** This will associate your application with this research opportunity. Please send a CV to  [donald.ferguson@netl.doe.gov](mailto:%20donald.ferguson@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.