

**Opportunity Title:** Combustion Engineer/Scientist  
**Opportunity Reference Code:** NETL-2018-07-1-Ferguson

**Organization** National Energy Technology Laboratory (NETL)

**Reference Code** NETL-2018-07-1-Ferguson

**Application Deadline** 9/1/2018 11:59:00 PM Eastern Time Zone

**Description** **TITLE: Combustion Engineer/Scientist**

**DEPARTMENT: U.S. Department of Energy/National Energy Technology Laboratory (NETL)**

**NETL CONTACT: Don Ferguson:**  
[donald.ferguson@netl.doe.gov](mailto:donald.ferguson@netl.doe.gov)

**DUTY LOCATION: Morgantown, WV**

**ACADEMIC LEVEL: PhD, MS**

**POSITION INFORMATION: 1-year appointment; full time (40 hours per week) with the possibility of extension**

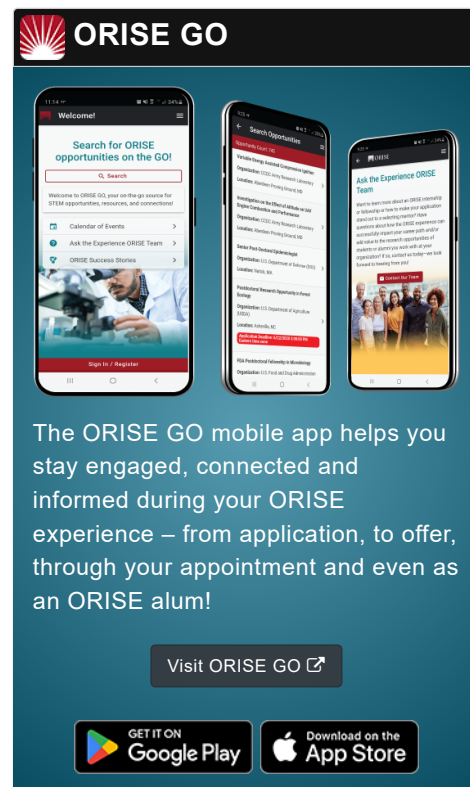
**CLOSING DATE: September 1, 2018**

**WHO MAY BE CONSIDERED: United States Citizens only**

**SUMMARY:**

A graduate student or post-doctoral researcher is sought for a position in Morgantown, West Virginia at the U.S. Department of Energy's National Energy Technology Laboratory. The candidate will research collaboratively with NETL Federal Research Scientists in the 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.

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The ideal candidate will have demonstrated completion of coursework pursuant to a Master's or PhD in science or engineering as well as 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.

#### 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.ornl.gov/netl/>. For questions or issues, please email both [Terry.Howard@ornl.gov](mailto:Terry.Howard@ornl.gov) and [Kerri.Fomby@ornl.gov](mailto:Kerri.Fomby@ornl.gov).
- 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:Donald.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.

#### Eligibility Requirements

- **Citizenship:** U.S. Citizen Only
- **Degree:** Master's Degree or Doctoral Degree.
- **Academic Level(s):** Postdoctoral or Post-Master's.
- **Discipline(s):**
  - **Chemistry and Materials Sciences** (12 📖)
  - **Communications and Graphics Design** (2 📖)
  - **Computer, Information, and Data Sciences** (16 📖)
  - **Earth and Geosciences** (21 📖)
  - **Engineering** (27 📖)
  - **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 📖)