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| **TITLE:** | Mechanical/Aerospace/Chemical Engineer – Experimental Study in Combustion |
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| **DEPARTMENT:** | U.S. Department of Energy/National Energy Technology Laboratory (NETL) |
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| **NETL CONTACT:** | Don Ferguson, donald.ferguson@netl.doe.gov |
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| **DUTY LOCATION:** | Morgantown, WV; Home institution is optional |

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

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| **POSITION**  **INFORMATION:** | 1-year appointment; part time (5-10 hours per week) with the possibility of extension |
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| **CLOSING DATE:** | April 1, 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:**

An opportunity exists for a visiting researcher to conduct applied research in support of NETL Pressure Gain Combustion research. Research efforts associated with this position focus primarily on the development and measurement uncertainty reduction of a Tunable Diode Laser Absorption Spectroscopy (TDLAS) system for the purpose of resolving exhaust gas composition, temperature and density at the exit of a Rotating Detonation Combustor.

Broadly, the project goals include the following:

1) Assist with the design and development of an experimental methodology using Tunable Diode Laser Absorption Spectroscopy (TDLAS) for quantifying exhaust gas concentration, temperature and density with a reasonable level of accuracy.

2) Assist in the development of a calibration methodology as well as an approach for data analysis.

3) Assist in relating data acquired from the TDLAS measurement to other related phenomena within the RDC.

4) Collaborate in an integrated team research environment.

SPECIFIC TASKS:

The specifically envisioned tasks support the broad goals described above, and may include one or more of the following elements.

1) Assist with the specification of hardware (laser, optics, fittings, etc) required to perform TDLAS in the RDC with adequate optical access.

2) Assist with the design of a robust optical arrangement of TDLAS and sampling system hardware.

3) Assist in the development of a calibration and measurement uncertainty reduction methodology to ensure accuracy of gas composition, temperature and density.

4) Assist in the development of a computational methodology for analyzing measurements acquired from the TDLAS system while operating the RDC.

**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.zintellect.com. For questions or issues, please email [NETLadmin@orau.org](mailto:NETLadmin@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: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.

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.