

TITLE: Graduate Student - Chemical looping combustion oxygen carrier development/evaluation

DEPARTMENT: Department of Energy

AGENCY: National Energy Technology Laboratory (NETL)

LEVEL: Graduate student or candidate with a Masters degree in engineering or science

POSITION INFORMATION: 1 year starting period with opportunity for renewal.

DUTY LOCATION: Morgantown, WV

WHO MAY BE CONSIDERED: U.S. Citizens, LPRs, or approved Foreign Nationals

SUMMARY:

Through the Oak Ridge Institute for Science and Education (ORISE) this posting seeks motivated researchers who currently pursuing a graduate degree at a degree-granting research institution, interested in performing research as part of the chemical looping combustion oxygen carrier development Team at NETL. NETL is a multi-disciplinary, scientific and technical-oriented national laboratory. NETL's Office of Research and Development (ORD) conducts research on chemical looping combustion as a potential technique for combustion of fossil fuels that would produce sequestration ready carbon dioxide.

Chemical-looping combustion (CLC) has been suggested as an energy-efficient method for producing high-purity CO₂ from combustion of fuel. This is an entirely new combustion technology that involves the use of an oxygen carrier, such as metal oxide, that transports oxygen from the air to the fuel, thereby avoiding direct contact between fuel and air. Development of efficient oxygen carriers is essential to successfully operate a CLC system.

Successful candidates will work in the laboratories at NETL to develop oxygen carriers with stable reactivity and high physical integrity. Flow reactor studies, thermo- gravimetric analysis, sample preparation for flow reactor studies, thermodynamic analysis and determining reaction mechanisms, energy analysis, chemical and physical characterization of oxygen carriers, will be conducted in the laboratory. Applicants with some experience in designing experimental techniques, performing laboratory experiments and analyzing data on oxygen carrier development or catalysts are preferable.

KEY REQUIREMENTS:

- Applicants must be U.S. Citizens, LPRs, or approved Foreign Nationals suitable for this position, as determined by background investigation.
- Applicant must have an undergraduate degree in chemistry, physics or chemical engineering. An applicant pursuing a graduate degree with an ability to travel to the NETL-Morgantown facility to participate in on-site research is preferable.

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. NETL utilizes

the ORISE program to support research and work within NETL's Office of Research & Development.

- Interested applicants should complete the online application at <http://www.ora.gov/netl/>
- In the online application list **Ranjani Siriwardane** as your requested mentor. This will associate your application with this job posting.
- If you have additional questions please contact Nancy Andres, Nancy.Andres@NETL.DOE.GOV, who is the NETL ORISE program contact.