

POSITION TITLE: Graduate/Post Doctoral Researcher - Electronic structure and surface chemistry of nanostructured and two-dimensional catalytic materials

DEPARTMENT: Department of Energy

AGENCY: National Energy Technology Laboratory (NETL)

LEVEL: Post-doctoral or early-career scientists

POSITION INFORMATION: Full-Time, up to two years renewable

DUTY LOCATION: Pittsburgh, Pennsylvania

WHO MAY BE CONSIDERED: United States Citizens, LPRs, & Foreign Nationals with appropriate approval

SUMMARY:

The Molecular Engineering Team at NETL is seeking post-doctoral or early career researchers with expertise in ultrahigh vacuum and in situ surface science approaches. Research efforts will focus on the growth and characterization of a variety of nanostructured and atomically-thin two dimensional catalyst systems of interest for catalytic CO₂ conversion, Fischer-Tropsch, and fuel upgrading applications. The candidate must have demonstrated, hands on, experience with laboratory-based ultrahigh vacuum surface science techniques such as scanning tunneling & atomic force microscopies, temperature programmed desorption (and related techniques), electron spectroscopies (XPS, UPS, Auger, etc), ion scattering (LEISS), and other related techniques. Experience with x-ray synchrotron approaches is also a benefit. The candidate will be joining the Molecular Engineering Team which is composed of synthetic chemists, physical/analytical chemists, and chemical engineers who collaboratively focus on the design, synthesis, and characterization of new catalysts and sorbents for a variety of fossil energy applications. These efforts range from atomistic scale studies of low-dimensional materials under ultrahigh vacuum conditions up to bench-scale proof-of-concept studies of high surface area catalyst materials. Surface science efforts in the team are supported by a dedicated laboratory space housing 3 distinct surface science chambers with a variety of analytical capabilities for determining atomic-scale structure-property correlations in surface grown catalyst materials. In addition, a dedicated high throughput XPS system with a bolt-on reaction chamber is maintained for surface characterization of heterogeneous catalyst materials. The candidate will be responsible for working within this team to initiate and conduct research on the structural and chemical properties of nanostructured Fe/Co materials, metal oxide thin films, metal dichalcogenides, and other related materials with a focus on defining and characterizing active site chemistry in these systems.

KEY REQUIREMENTS:

- Applicants must be U.S. Citizens or approved Foreign Nationals
- **Minimum qualifications:** An M.S. in Chemistry, Physics, Chemical Engineering, Materials Engineering, or a related field, with experience and publications in the synthesis or experimental characterization of nanostructured catalyst systems. **Preferred qualifications:** A Ph.D. in Chemistry, Physics, Chemical Engineering, Materials Engineering, or related field.

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.ornl.gov/netl/>
- In the online application **list Christopher Matranga as your requested mentor**. This will associate your application with this job posting. Please send a CV to Dr. Christopher Matranga christopher.matranga@netl.doe.gov
- If you have additional questions please contact Nancy Andres Nancy.Andres@netl.doe.gov, who is the NETL ORISE program contact.