

**Opportunity Title:** Postdoc – Evaluating the Performance of Materials Produced Using Advanced Manufacturing Techniques. **Opportunity Reference Code:** NETL-2016-05-3-Bennett

Organization National Energy Technology Laboratory (NETL)

Reference Code NETL-2016-05-3-Bennett

Application Deadline 9/21/2016 12:00:00 AM Eastern Time Zone

**Description TITLE:** Postdoctoral Researcher (Materials Science and Engineering) for Evaluating the Performance in Extreme Environments of Materials Produced Using Advanced Manufacturing Techniques.

DEPARTMENT: U.S. Department of Energy

AGENCY: National Energy Technology Laboratory (NETL)

LEVEL: Postdoctoral

**POSITION INFORMATION:** Full Time, annual appointments, renewal up to 5 years

DUTY LOCATION: Albany, OR

**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 postdoctoral research associate is sought with materials knowledge/experience in the evaluation of high temperature corrosion and mechanical behavior of ceramics, metals and composite materials. The applicant will be part of an integrated research team developing new chemical reactor concepts for gasification of coal (with up to 20 wt. pct. biomass additions). The design of prototype chemical reactors will be optimized by team members utilizing computational fluid dynamics of reacting flows. It is ultimately envisioned that these designs will be translated into modular chemical reactors through advanced materials manufacturing methods, such as additive manufacturing, which enable the production of engineered materials

The applicant will be part of this team and will conduct research to: (1) evaluate engineered materials and articles made through advanced and/or conventional manufacturing methods, and (2) participate in the refinement of both the engineered materials and the processing requisite to produce them in practical components. The candidate will evaluate the performance of the manufactured articles in a coal gasification environment by designing and conducting laboratory experiments to simulate the appropriate coal gasification conditions; will apply modeling and materials knowledge to the refinement of processing parameters needed to manufacture the articles; and will develop metrics and processes for the qualification of the engineered materials.

## **KEY REQUIREMENTS:**

· Applicants must be U.S. Citizens or approved Foreign Nationals

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- Ph.D. in materials science/engineering
- College courses or work experience preferred in the following areas:
  - course work metallurgy, ceramics, physics, chemistry, and engineering
  - o course work in materials thermodynamics and kinetics
  - o course work in mechanical behavior of materials
  - knowledge of gaseous corrosion and/or hot-corrosion of metals and/or ceramics
  - knowledge of manufacturing and processing of metals and/or ceramics
  - o strong verbal and written English communication skills
  - o demonstrated experience in conducting scientific research

# 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 <u>http://www.orau.gov/netl/</u>
- In the online application list <u>James Bennett</u> as your requested mentor. This will associate your application with this job posting. Please send a CV to <u>James.Bennett@netl.doe.gov</u>.
- If you have additional questions please contact Nancy Andres, <u>Nancy.Andres@netl.doe.gov</u>, who is the NETL ORISE program contact.

#### Eligibility • Degree: Doctoral Degree.

- Requirements
- Academic Level(s): Postdoctoral.
- Discipline(s):
  - Chemistry and Materials Sciences (12. )
  - Communications and Graphics Design (1. 1)
  - 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 (10)
  - Other Non-Science & Engineering (13 (13)
  - Physics (<u>16</u>)
  - Science & Engineering-related (<u>1</u><sup>(1)</sup>)
  - Social and Behavioral Sciences (28. (28.)



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