|  |  |
| --- | --- |
| **TITLE:** | RF and Microwave Sensor Device and Material Scientist |
|  |  |
| **DEPARTMENT:** | U.S. Department of Energy/National Energy Technology Laboratory (NETL) |
|  |  |
| **NETL CONTACT:** | Paul Ohodnicki, paul.ohodnicki@netl.doe.gov |
|  |  |
| **DUTY LOCATION:** | Pittsburgh, PA |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **ACADEMIC LEVEL:** | **X** | PhD | **X** | MS |  | BS |  | Undergrad |  | Faculty |

|  |  |
| --- | --- |
| **POSITION**  **INFORMATION:** | 1-year appointment; full time (40 hours per week) with the possibility of extension (anticipated at least 2 years project duration) |
|  |  |
| **CLOSING DATE:** | 12/31/2018 |
|  |  |
| **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 to join an interdisciplinary team developing new sensor technology for a range of energy applications spanning power generation, advanced manufacturing, and infrastructure monitoring.

The team seeks a candidate with a strong background in the development of oxide-based sensing layers and their integration with surface acoustic wave (SAW) and chemiresistive sensors for high temperature oxy-fuel combution and related power generation applications. The successful candidate will have the opportunity to synthesize metal oxides thin films, integrate them with SAW/chemiresistive transducers, and test under gases relevant for high temperature power generation processes. Knowledge of radio frequency (RF) sensing technologies and techniques and hands-on experience operating DC/RF measurement systems are highly desired. Strong collaborative interactions are expected with chemists and material scientists, as well as other device level scientists focused on chemical sensing. Publications in high quality scientific peer-reviewed journals, presentations at national and international technical meetings, and development of new intellectual property are all expected outcomes of the research to be performed.

Technical experience of interest for the position in question includes:

1. Experience with the development of sensing materials - including metal oxide thin films - for high temperature applications.
2. Integration of various functional sensing materials with planar transducers to be tested in high temperature environments.
3. Background in thin film fabrication, processing, and characterization. In particular, experience with wet chemistry, thin film synthesis using sol gel, spin coating / dip coating, handling glass or ceramic substrates / wafers.
4. Experience with acoustic wave sensor techniques and technologies.
5. Experience with DC and RF measurement techniques and hands-on familiarity with laboratory equipment such as DC source meters, multimeters, impedance analyzers, network analyzers, wire bonders.
6. Experience with structural characterization of materials and hands-on experience with relevant laboratory equipment such as XRD, EDS, SEM, and XPS.
7. Experience with interrogator development, data acquisition, and processing systems using LabVIEW/MATLAB.

A successful applicant will have an advanced degree in Applied Physics, Materials Science, Electrical Engineering or a related field of study. Excellent communication skills and a willingness and interest to collaborate in an interdisciplinary team environment to drive towards overall project and team objectives is also highly desired.

**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 Research and Innovation Center’s (R&IC) core mission areas.

* Interested applicants should complete the online application at <http://www.orau.gov/netl/>.
* In the online application **list** **Paul Ohodnicki as your requested mentor.** This will associate your application with this job posting. Please send a CV to [paul.ohodnicki@netl.doe.gov](mailto:paul.ohodnicki@netl.doe.gov), [jagannath.devkota@netl.doe.gov](mailto:jagannath.devkota@netl.doe.gov), and [Jeffrey.wuenschell@netl.doe.gov](mailto:Jeffrey.wuenschell@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.