|  |  |
| --- | --- |
| **TITLE:** | Optical Fiber Sensor 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 |  | 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:** | 2/28/2018 |
|  |  |
| **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 fiber-optic devices and systems for chemical sensing in wellbore integrity monitoring applications. The research associate will model the physics of light propagation in coated optical fibers and interaction with surrounding media and external stimuli, and will prototype, develop and deploy novel embedded fiber-optics sensors for environmental conditions monitoring in wellbore cement. Knowledge of fiber-optic sensing technologies and techniques and hands-on experience with optical fiber and designing optical systems are highly desired. Strong collaborative interactions are expected with material scientists as well as other device level scientists focused on the distributed chemical sensing for wellbore integrity monitoring. 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. Knowledge of optical spectroscopy techniques including UV/Vis/Near-IR, ellipsometry, and fluorescence, fiber coating, fiber Bragg gratings, interferometric sensing, optical time-domain reflectometry (OTDR), optical frequency-domain reflectometry (OFDR), Rayleigh and other backscatter phenomena
2. Hands-on familiarity with laboratory equipment such as lasers, photodiode detectors, fusion splicers, electro-optic modulators, spectrophotometer, oscilloscopes, optical spectrum analyzers, network analyzers, and LabVIEW based data acquisition and processing systems
3. Experience with simulation of fiber-optics waveguide devices with algorithms such as Finite Difference Time Domain (FDTD), beam propagation method (BPM), Finite element method (FEM) using software packages such as MATLAB and COMSOL

A successful applicant will have an advanced degree in Physics, Optics, 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), [michael.buric@netl.doe.gov](mailto:michael.buric@netl.doe.gov), and [ping.lu@netl.doe.gov](mailto:ping.lu@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.