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| **TITLE:** | pH Sensing Layer Development Scientist |
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| **DEPARTMENT:** | U.S. Department of Energy/National Energy Technology Laboratory (NETL) |
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| **NETL CONTACT:** | Paul Ohodnicki, paul.ohodnicki@netl.doe.gov |
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| **DUTY LOCATION:** | Pittsburgh, PA |

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

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| **POSITION**  **INFORMATION:** | 1-year appointment; full time (40 hours per week) with the possibility of extension (anticipated at least 2 years project duration) |
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| **CLOSING DATE:** | 2/28/2018 |
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| **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.

A post-doctoral researcher is sought for developing, synthesizing and testing various pH sensing layer in simulated high pressure hight temperature oil and natural gas wellbore environments. The team seeks a candidate with a strong background in electrochemistry, polymers and organic / inorganic hybrid materials, and nanotechnology for pH sensing in natural gas infrastructure monitoring applications. A number of sensing layer formulations will be explored and integrated with different sensing platforms for pH sensing in various energy infrastructure monitoring applications including high pressure and high temperature conditions. Experience with nanoparticle, nanoporous, and functionalized thin films is also highly desired. The research associate will synthesize various sensing layer formulations and will test them under simulated solutions using measurement techniques designed for optical, electronic, and microwave sensing schemes. Strong collaborative interactions are expected with device level scientists as well as other materials scientists focused on the optimization of solid-aqueous phase interactions. 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. Deposition techniques such as wet chemistry deposition, physical vapor deposition (PVD), and electrolytic and electroless plating. Development and application for thin and thick films of metal oxides, polymers and organic / inorganic hybrid materials.
2. Electrochemistry and solid-electrolyte interaction. Experience with electrochemical techniques such as potentiodynamic polarization, electrochemical impedance spectroscopy, and related data analysis.
3. Materials characterization techniques including SEM, XRD, TGA, FTIR, XPS, etc.
4. Optical spectroscopy including UV, Vis, near-IR, and spectroscopic ellipsometry
5. Experience with optical, electronic, and mass-based measurement techniques including optical spectroscopy (UV, vis, near-IR, spectroscopic ellipsometry), 2- and 4-point resistivity and hall effect measurements, and QCM

A successful applicant will have an advanced degree in electrochemistry, chemistry, materials science and 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), [Margaret.Ziomek-moroz@netl.doe.gov](mailto:Margaret.Ziomek-moroz@netl.doe.gov), and [Ruishu.Feng@netl.doe.gov](mailto:Ruishu.feng@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.