

NETL/ORISE OPPORTUNITY ANNOUNCEMENT

TITLE: Optical Fiber and Cladding 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: ☒ 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 high temperature ceramic materials and thin / thick film coating processing and characterization. The researcher will develop new concepts in the cladding of high temperature single crystal optical fibers such as sapphire through a combination of different approaches. An emphasis will be placed on wet chemical based deposition processes such as sol-gel and colloidal methods. The candidate will perform high temperature processing to explore the stability of various candidate optical fiber cladding and core materials. He or she will also characterize the optical quality and waveguiding properties of clad single crystal optical fibers and will work to scale-up promising concepts in collaboration with other team members. Thermodynamic and kinetic modeling techniques employing packages such as ThermoCalc will also be explored throughout the project to understand experimental results and guide new concepts in materials development. 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) Wet chemical based deposition technique development and application (sol-gel, colloidal chemistry, etc.) for thin and thick films
- 2) Materials characterization techniques including SEM, XRD, TEM, XPS, etc.
- 3) Optical spectroscopy including UV, Vis, near-IR, and spectroscopic ellipsometry

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- 4) Thermodynamic and kinetic modeling of oxide based materials using techniques such as FactSage, Thermocalc, etc.
- 5) Experience with optical fibers and optical instrumentation

A successful applicant will have an advanced degree in materials science, applied physics, 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.ornl.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, and michael.buric@netl.doe.gov.
- If you have additional questions please contact Patricia Adkins-Coliane, Patricia.adkins-coliane@netl.doe.gov, who is the NETL Graduate Education Program Manager.