

## Postdoctoral positions in Experimental Physics - Acoustics at Los Alamos National Laboratory

We are looking to fill two postdoctoral positions in the Acoustics and Sensors Team of the Materials Physics and Applications Division at the Los Alamos National Laboratory (LANL). We solve challenging technical problems for the industry and the US government, typically involving noninvasive characterization of fluids and acoustic manipulation of materials. Our solutions focus on novel applications of acoustics, but also draw from advances in multiple disciplines. Our portfolio of existing technologies exploits the interactions between sound and matter using resonance techniques. Low power ultrasonic resonance is used to probe the physical properties of a material, whereas high power ultrasound is employed in manipulating materials. We have a strong connection with industry and put a strong emphasis on invention and commercialization of technology in addition to carrying out basic research.

### Job Summary

We invite applicants who are interested in working on a range of applied research projects in the area of Acoustical Sensors and Devices that extend from energy-related sensors to biomedical applications. Current research includes the development of novel sensors (with particular emphasis on acoustic sensors) for: (1) material characterization (solids, liquids, & gases), (2) acoustical imaging, (3) nonlinear acoustics, (4) acoustic separation of two-phase systems, (5) detection of corrosion and defects in materials, and (6) acoustically engineered materials. More specifically, funded projects include ultrasonic noninvasive fluid flow (both single phase and multiphase) and fluid composition measurements, materials characterization, two-phase (liquid-liquid, liquid-gas) separation using ultrasound and other forces, ultrasonic imaging, and nondestructive testing of materials. The primary objective of the research is to solve practical problems for the industry and government. The work involves development of new techniques, customized instrumentation, and validation measurements in the field. The successful candidate will be expected to contribute to the development of new sensor technologies, patents, and publications. There will be opportunities to work in a wide range of areas, to innovate, and to present work to sponsors and at conferences.

### Required Skills

- Strong background and demonstrated hands-on experience in one or more areas: Ultrasonic techniques, Nondestructive testing, Sensor technologies, Wave propagation and scattering, Numerical Analysis, Signal processing, Computer-controlled experimentation.

- Fluency in one or more Computer Programming Languages (e.g., LabVIEW, COMSOL, Matlab, Mathematica, etc.).
- Possess extensive hands-on experience in designing and conducting experiments.
- Demonstrated experience in conducting original scientific research through peer reviewed publication record.
- Excellent communication skills in English (both oral and written)
- Willing to travel to various industrial test facilities in the US and conduct experiments.

### **Desired Skills**

- Knowledge of electronics and of typical laboratory test instruments.
- Demonstrated ability to work independently and with minimum supervision.
- Ability to adapt to new requirements for projects and be flexible enough to learn new areas of research as needed.
- Able to work effectively as a part of a team in a multi-disciplinary environment and interact effectively with people with a variety of expertise
- Demonstrated ability to plan and organize assignments so that schedules are met on time.

### **Education**

A PhD in Applied Physics or related fields, completed within the last five years or soon to be completed.

Females and minorities are strongly encouraged to apply. US citizenship or permanent residency is preferred for these positions.

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Web page: <http://www.lanl.gov/orgs/mpa/mpa11/AcousticsAndSensorsTeam/>

For more information on Postdoc program at LANL, please refer to <http://www.lanl.gov/careers/career-options/postdoctoral-research/postdoc-program/index.php>

