Postdoctoral Research Associate – Microelectronics for Advanced Imager Readout

Job ID: xxxxx          Location: BNL Building 525B         Full-Time/Post Doctorate/Exempt

BNL OVERVIEW

Brookhaven National Laboratory is a nonprofit research and development institution whose purpose is to advance ideas and knowledge through a multidisciplinary program of basic and applied research. The Instrumentation Division currently has an opening for a Postdoctoral Research Associate in the LSST group.

ORGANIZATIONAL OVERVIEW

This position will be in the LSST group in the Instrumentation Division to join in the development of the readout electronics and overall optimization of the 3.2Gpixel focal plane array based on state-of-the-art deep depletion charge-coupled devices (CCD).

ESSENTIAL DUTIES AND RESPONSIBILITIES:

The LSST Project is preparing for construction of a large ground based observatory in Chile. The 8.4 meter LSST will survey the entire visible sky deeply in multiple colors every week, probing the mysteries of Dark Matter and Dark Energy, and opening a movie-like window on objects that change or move rapidly; exploding supernovae, potentially hazardous near-Earth asteroids, and distant Kuiper Belt Objects. The LSST group is in need of a talented individual to perform detailed electro-optic characterization and analysis on pre-production prototypes, and to have a significant role in guiding the development of the final mixed-signal CCD readout hardware.

REQUIRED KNOWLEDGE, SKILLS AND ABILITIES:

• Recent Ph.D. in experimental physics, electrical engineering, optical science, or astronomy.
• Experience in electrical, optical device, and system measurements.
• Knowledge of mixed-signal circuits, low noise signal processing, digital signal processing and modern electronic components.
• Significant experience with laboratory instrumentation, computing, and data analysis
• Hands-on problem solving skills.
• Excellent verbal and written communication skills.
• Ability to work as part of a team.

PREFERRED KNOWLEDGE, SKILLS, AND ABILITIES:

• Experience with electro-optical characterization of imaging systems for astronomy.
• Experience in optimizing the performance of scientific detector readout systems.
• Familiarity CCD imagers and readout electronics.
• Working knowledge of circuit schematic entry and PCB layout.
• Python programming experience.
OTHER INFORMATION:

BNL policy states that research associate appointments may be made to individuals who have received their doctoral degree within the past five years.

Environmental, Health and Safety Considerations:
A portion of the work will be performed in a cleanroom.