Physics Division Argonne National Lab
Detector Engineer/Physicist

Posted at RD2 and RD3 – Physics Classification

The Low Energy Research and Technical Support Groups are responsible for the successful execution of nuclear physics experiments at the Argonne Tandem Linear Accelerator System, ATLAS. This individual will work with the Low Energy Technical Support Group in the role of detector engineer/physicist who will contribute to the planning, setting up, design, and implementation of nuclear physics experiments, which are driven by a large international user base. They will work on maintenance, regular operation, upgrades to existing detector systems, and the development of new detector systems and their integration into the ATLAS experimental areas. These will include ATLAS based instrumentation and, additionally, those brought to the ATLAS facility by outside users. In some instances, it may involve the set-up of detection systems at other facilities connected to the Low Energy Research program at the Physics Division.

Key Responsibilities:

- Plan and set-up the end stations for accelerator-based experiments, including the target and detectors systems, for a diverse experimental program at ATLAS in conjunction with ATLAS users and the ATLAS user liaison.
- Install, operate, and troubleshoot a variety of nuclear detector systems including germanium and silicon-based detectors and gas-based detectors.
- Operate vacuum systems used for accelerator beams lines, and complex detector and target-station volumes.
- Operate and set up a variety of magnetic spectrographs and auxiliary detection systems. A basic knowledge of cryogenic systems.
- Operate and modify electronics signal processing and data acquisition systems, including having a basic knowledge on programming and data visualization packages.
- Provide support to the ATLAS user program during the initial phase of experiments when stable and radioactive beams are tuned to the accelerator end stations, which may involve after-hour efforts or being on call for certain shifts.
- Work with a diverse team of physicists, technical support personnel, and the ATLAS operations group, to develop new detector technologies and capabilities, including new-build and upgrades to existing systems.
- Perform routine maintenance on various detector systems and experiment-based instrumentation.

Minimum Requirements:

- Excellent communication skills to work with a diverse and broad international user-based research program, and to write technical papers and orally present work where necessary.
- Computing skills, including familiarity with LINUX/UNIX operating systems.

Preferred Requirements:

- A PhD in nuclear science that involved the use of accelerators and radiation detection systems.
- Demonstrated track record in the design and successful execution of accelerator and nuclear science-based experiments with a variety of charged particle and radiation detectors with an emphasis on gas-based systems.
- Experience with mechanical design and stress analysis.

Candidates who are interested will apply at https://www.anl.gov/hr/external-applicants and reference job posting 405019. Candidates who have additional questions may contact Dr. Benjamin Kay at kay@anl.gov

At the RD2 level candidate will have Bachelors' Degree and 5+ years' work experience or Master's and 3+ years' experience or Doctorate and 0 years' experience.

At the RD3 level candidate will have Bachelors' Degree and 8+ years' work experience or Master's and 5+ years' experience or Doctorate and 4+ years' experience.

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