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| **Job Title:**  Research Specialist — Equipment  | **Position Title:** LIGO Laboratory Technician  |
| **Department:** MIT Kavli Institute  | **% Effort or Wkly Hrs:** 100% |
| **Reports to:** MKI Head of Engineering | **Prepared by:** Fritschel/Rudat  |
| **Date:** May 2025 |

**Position Overview:**

The LIGO (Laser Interferometer Gravitational-Wave Observatory) group in MIT’s Kavli Institute for Astrophysics seeks a Laboratory Technician to manage its on-campus laboratories and facilities and assist with technical aspects of the various research and development projects of the group. These projects typically involve precision mechanical, electro-mechanical, and/or optical-mechanical assemblies, and high- and ultra-vacuum systems. There will also be opportunities to travel to the LIGO sites in Washington and Louisiana to help with activities involving the LIGO detectors (instrument assembly, installation, and testing).

***About LIGO:***

LIGO is a National Science Foundation major facility dedicated to gravitational wave astronomy and astrophysics, jointly operated by the Massachusetts Institute of Technology and California Institute of Technology. LIGO consists of two 4 kilometer-long interferometers, one near Richland, Washington and the other in Livingston, Louisiana. The current generation of interferometers came on line in 2015 and shortly afterwards LIGO launched the field of gravitational wave astronomy with the first observation of a merger of two black holes; this achievement led to the awarding of the 2017 Nobel Prize in Physics to its founders. The MIT team is a diverse and vibrant group of scientists, engineers and students, dedicated to advancing this cutting-edge field of science.

**Principal Duties and Responsibilities (Essential Functions\*\*)**:

* Operate and maintain high- and ultrahigh-vacuum systems
* Prepare mechanical and optical equipment for in-vacuum use
* Precision mechanical assembly, alignment, and testing of complex instruments, typically in a clean room environment
* Assist in the development of new components for the LIGO detectors
* Assist in the design, construction, and setup of research projects in the LIGO labs
* Maintain the infrastructure in the LIGO labs (mechanical, optical, and laser labs), including clean room enclosures and clean room support equipment
* Support general laboratory safety and provide safety guidance to students and support personnel
* Other duties as required for the successful design, implementation, operation, maintenance, and support of the LIGO instruments and facilities

**Supervision Received:**

Supervised by MKI’s Head of Engineering, Alexander Rudat, and will take direction from Research Scientist Slawek Gras.

**Supervision Exercised:**

Not responsible for direct reports, but will provide safety guidance to students and staff in the LIGO laboratory.

**Qualifications & Skills:**

* Bachelor’s degree in a technical field (e.g., mechanics or electronics)
* Three years of related work experience; including two years of experience with high- and ultrahigh- vacuum systems and vacuum contamination control
* Must be able to read and understand mechanical drawings and technical specifications and assembly instructions, and test procedures
* A demonstration eagerness to identify problems, craft solutions, and ensure their successful installation and implementation, independently or in a team where both leadership and team playing are crucial.
* Must be able to lift 20 or more pounds
* Proficient with standard computer applications (Word, Excel, Web applications)

*PREFERRED EDUCATION AND EXPERIENCE:*

* Experience in scientific instrument design and assembly
* Skills in precision manual machining using drill press, bandsaw,  milling machines and metalworking lathes
* Experience with basic troubleshooting of electrical instrumentation
* Experience with laser systems

\*\* To comply with regulations by the American with Disabilities Act (ADA), the principal duties in position descriptions must be essential to the job. To identify essential functions, focus on the purpose and the result of the duties rather than the manner in which they are performed. The following definition applies: a job function is essential if removal of that function would fundamentally change the job.