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## **Sr. Mechanical Research Engineer (Research Support Specialist III)**

**May 2022**

*Cornell University embraces diversity and seeks candidates who will contribute to a climate that supports students, faculty and staff of all identities and backgrounds. If you don't meet 100% of the job qualifications, but see yourself contributing, please submit an application. We strongly encourage individuals from underrepresented and/or marginalized identities to apply. We're a recognized employer and educator valuing AA/EEO, Protected Veterans, and Individuals with Disabilities.*

CLASSE operates world class facilities and carries out research driven by Cornell faculty in the fields of beam physics, photon science, particle and astrophysics in order to expand scientific knowledge, educate students and inspire the public.

The Cornell Laboratory for Accelerator-based ScienceS and Education (CLASSE) studies particle beams and accelerators, photon science, particle physics and the early universe, and serves students, the public and scientists from Cornell and around the world. The research missions of this laboratory are in many respects unique in the world.

Primary responsibilities of the Senior Mechanical Research Engineer position are to independently manage the mechanical development of sophisticated scientific instruments and components. This includes:

- Engineering, specification, modeling, detailed design, analysis, manufacturing, construction and delivery of highly specialized equipment for particle accelerators and X-Ray/Opto-mechanical components.
- Collaborate with both accelerator physicists and X-Ray scientists – locally and internationally – as well as laboratory engineers and technical support staff to develop designs for complex new devices, requiring innovative designs and critical high-level analysis of sophisticated thermal and mechanical systems.
- Translate concepts into detailed engineering drawings, carry out full design analysis, and identify potential problems, independently and collaboratively develop solutions.
- Manage all aspects of the fabrication of components, which sometimes includes multiple, complex pieces being integrated into an effective system.
- Manage and participate in the construction, assembly, installation, and commissioning of respective devices and equipment. This verification is realized through the collection and analysis of experimental data as part of a team research effort.
- Install, test, commission, and support through the lifetime of custom equipment.
- Determine, construct, and maintain procedures and documentation to support the equipment.
- Participate in and monitor the performance of components during experimental runs including verification of performance.
- Supervise student employees and provide functional guidance to laboratory staff team members.
- Present project results at meetings and respond to questions concerning engineering design and operation.
- Assist in the preparation of research papers, reports, and articles for publication.

**Qualifications and Education Requirements:**

- A Master's degree in Mechanical Engineering (or related field) plus 3-5 years relevant work experience, or an equivalent combination of education and experience, is required.
- Engineering design skills and ability to lead development projects in own area of expertise.
- Demonstrated mastery with commercial 3-D CAD programs (CLASSE uses Autodesk Inventor).
- Demonstrated experience with FEA Software as related to thermal, mechanical, and coupled analysis (e.g., ANSYS).
- Demonstrated familiarity of precision machining practices such as conventional turning, milling, and NC machine tool capabilities and complex setups.
- Ability to assist scientists in research and provides functional leadership to technical staff.
- Ability to work efficiently within tight schedules and demonstrated ability to work in an environment of multiple, overlapping, dynamic and complex projects including international collaborations.
- Capable of adapting to the changing needs of a research environment.
- Able to give and receive directions and to communicate effectively across all research groups in the department.
- Work effectively and cooperatively within a team environment.

**Preferred Skills:**

- Experience in cooling of electro-mechanical devices.
- Experience in engineering and design of particle accelerator and X-Ray/Opto-mechanical related components.
- Experience with specialty materials such as 316 SS, Niobium, Titanium, 6061 Al, PEEK, Copper, Tungsten etc.
- Experience with Ultra High Vacuum (UHV) equipment design and UHV practices.
- Experience in the design/engineering of cryogenic equipment.
- Experience in computer scripting and/or programming languages.
- Familiar with design concerns regarding radiation and high voltage safety issues as related to accelerator X-Ray/Opto-mechanical components and systems.

Visa sponsorship is not provided for this position. Please apply online at <https://cornell.wd1.myworkdayjobs.com/CornellCareerPage> (posting #WDR-00031156).

As part of the university's [comprehensive vaccination program](#), all Cornell employees are required to have and provide proof of an FDA-or WHO-authorized or approved COVID-19 vaccine or have obtained a university-approved disability/medical or religious exemption, regardless of their role and work location.

New hires are required to provide documentation showing full vaccination status (that is, completion of two shots of the Moderna or Pfizer vaccine or one shot of the Janssen/Johnson & Johnson) before their first day of work. If a new hire's vaccination is not complete or information is not received by their start date, the first day of work will be delayed. It is possible in some cases that an offer of employment may be withdrawn.

For additional information on Cornell's Vaccination Compliance Program, [click here](#).