Position Overview:
The MIT Kavli Institute for Astrophysics and Space Research (MKI) Optical and Infrared Instrumentation Group seeks a Deputy Instrument Design Lead for the development and deployment of a cryogenic, medium resolution, long-slit IR echelle spectrograph for the 25m Giant Magellan Telescope, or other design and build projects for next-generation Extremely Large Telescopes. The team seeks a highly motivated Instrument Scientist to work on challenging technical problems while co-leading a team of engineers and researchers alongside an established MKI Principal Research Scientist. As the sole full-time team member during this project’s initial design phase, this position will provide project continuity and coordination, bridging between project science, systems engineering, project management, and relevant engineering (optical, mechanical, electrical) and technical (lab testing, integration, performance verification) fields. Successful execution of this project will require the applicant to be a self-starter who can learn quickly on the job while engaging closely with these engineering, technical, and scientific experts at a high level to define and achieve common goals, although the applicant is not expected to have deep expertise in all aspects of this complex system.

Principal Duties and Responsibilities (Essential Functions**):

**Primary Responsibilities:**
- Development of instrument requirements, translating the flow-down from science to design parameters
- Execution of trade and feasibility studies
- Risk assessment during technical development
- Identification of COTS and custom components, including vendor selection and communications
- Coordination of interface definitions with GMT Project Office
- Coordination of weekly project meetings
- Maintenance of project documentation
- Assisting budget and schedule planning
- Preparation of reports for the sponsor
- Publication of scientific results
- Other duties as needed

**Supervision Received:**
Supervised by MKI’s Head of Engineering, Alexander Rudat, and will take direction from Principal Research Scientist Gabor Furesz.

**Supervision Exercised:**
Position will not have any direct supervisory responsibilities.

**Qualifications & Skills:**
- Master’s Degree in STEM field
- 2-5 years of prior relevant experience in instrument design, development, integration, and testing (preference for ground- or space-based astronomical instrumentation)
- Experience working on small, mixed skill technical teams

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<tr>
<th>Job Title: Sponsored Research Technical Staff</th>
<th>Position Title: Deputy Instrument Design Lead</th>
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<tr>
<td>Department: Kavli Institute</td>
<td>% Effort or Wkly Hrs: 100%</td>
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<td>Reports to: Head of Engineering</td>
<td>Prepared by: Rudat/Furesz</td>
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<td>Date: May 2024</td>
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• Experience with design and simulation software tools (*e.g.* Zemax / CodeV, Solidworks or other CAD, COMSOL, Ansys tool suite, *etc.*)
• Basic knowledge of project management and systems engineering methods, practices, and software (*e.g.* MBSE tools, Atlassian, MS Project, *etc.*)
• Ability to develop and execute technical procedures
• Experience troubleshooting and/or performing root cause analysis, trade studies, and risk analysis
• Strong communication and interpersonal skills
• Efficient technical writing and fluency with documentation/presentation tools (*e.g.* MS Office 365, Google Suite, LaTex / Overleaf, *etc.*)
• Basic coding skills (Python) and OS knowledge (Linux, OS X, Shell)
• High level of independence and self-organization
• Established work eligibility within the U.S.

Preferred:

• PhD in STEM field
• Experience leading technical teams
• Proficiency in programming in Python and use of code management resources (GitHub/Lab)
• Documented record of design and analysis (*e.g.* relevant thesis, prior project participation, publications, patents, *etc.*)
• Experience planning and executing test events (*e.g.* ground or flight tests, systems integration tests)
• Experience identifying resources and dependencies required to support test events (staffing, test assets, configuration)
• Experience interfacing with internal and/or external customers and organizational partners
• Eligibility to read and manage ITAR- and/or EAR-sensitive work materials

Applicant to submit a Cover Letter, CV and list of publications, 3 references, and portfolio (max 10 pages in PDF form, showcasing prior work and experience).

**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.**