

## Scientist, Photonics & Semiconductors

Pendar Technologies ([www.pendar.com](http://www.pendar.com)) invites applications for a PhD Position in Semiconductor Photonics R&D within our Infrared & Semiconductor Technology Division. This on-site role in Cambridge, MA offers the opportunity to drive cutting-edge research and prototyping of advanced laser technologies—including Quantum Cascade Lasers (QCLs), Interband Cascade Lasers (ICLs), and integrated photonics solutions—for new and emerging applications. Your work will help drive important developments across diverse applications, such as medical diagnostics and environmental monitoring, while also supporting our existing Raman spectroscopy instruments. As part of our strategy to scale up production, you will support the transition of laser designs and manufacturing processes to external production partners, ensuring efficient and reliable deployment. Collaboration with a multidisciplinary team of engineers and scientists—alongside industry leaders and academic institutions such as MIT—is central to achieving project objectives and advancing the field of semiconductor lasers.

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### Essential Job Functions

- **R&D Prototyping**: Design and prototype QCLs and ICLs tailored for innovative and emerging applications, potentially integrating photonic components such as photonic integrated circuits (PICs).
  - **Laser Development**: Participate in R&D efforts to develop diode lasers for our existing Raman spectroscopy instruments, while exploring new applications for advanced laser technologies.
  - **Fabrication**: Apply semiconductor fabrication techniques in a cleanroom environment to develop and improve laser devices.
  - **Data Characterization and Reliability**: Characterize laser samples, conduct reliability testing, and perform failure analysis to ensure device performance and longevity.
  - **Innovation**: Stay current on advancements in semiconductor laser, photonics, or nanophotonics research to drive continuous innovation.
  - **Technology Transfer**: Contribute to transferring laser technology and manufacturing processes to outsourced production partners, ensuring quality and consistency.
  - **Collaboration**: Work closely with cross-functional teams, industry partners, and academic institutions to enable seamless integration of lasers into both existing products and new applications.
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### Qualifications

- **Educational Background**: PhD in Physics, Electrical Engineering, Materials Science, Photonics, Nanophotonics, or a related field.
- **Semiconductor Laser Experience**: Prior hands-on semiconductor laser experience is helpful but not required—a strong foundation in photonics, nanofabrication, or related fields is highly valued.
- **Work Authorization**: Applicants must have current U.S. work authorization.
- **Export Compliance**: This role involves access to technologies subject to U.S. export control laws, and we are required to assess eligibility for compliance purposes. If not a U.S. Person (as defined in the Immigration and Nationality Act), applicants must be eligible to receive an Export License

from the Directorate of Defense Trade Controls. This role is open to U.S. Persons (including citizens and permanent residents) and those meeting License Eligibility Requirements. Per U.S. policy (22 CFR § 126.1), Export License(s) may be restricted for citizens of certain countries.

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### **Specialized Knowledge and Skills**

- Fundamentals: Solid understanding of optics, photonics, or nanophotonics; familiarity with semiconductor device physics and processing is a plus.
  - Design Tools: Experience (or willingness to learn) COMSOL, Lumerical, Python, MATLAB, etc.
  - Cleanroom and Testing: Experience with cleanroom processing and optoelectronic device testing.
  - Adaptability and Problem-Solving: Ability to thrive in a dynamic environment and address complex technical challenges.
  - Communication: Strong written and oral communication skills to collaborate effectively with diverse teams.
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### **What We Offer**

- Meaningful Contributions: A role that supports existing Raman spectroscopy products and contributes to pioneering new laser applications.
  - Growth and Professional Development: Expand your skills through hands-on experience and training, with pathways to advanced research and project leadership—allowing you to help shape the future of laser technology at Pendar.
  - Collaborative Environment: Work alongside experts in a supportive and innovative setting, including collaborations with industry partners and academic institutions such as MIT and Harvard.
  - Competitive Compensation: Competitive salary with comprehensive health, dental, and vision insurance, a 401(k) plan with company matching, and paid time off.
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**To Apply:** Submit your resume to [Job Application for Scientist, Photonics & Semiconductors at Pendar Technologies](#)

Pendar Technologies is an Equal Opportunity Employer and promotes diversity in the workplace.