Senior DFB Laser Development Engineer - InP Photonics for AI Infrastructure

Shape the Optical Backbone of AI
At SemiNex, you won't just design lasers, you'll architect the optical engines powering the next generation of AI infrastructure. Our high-power InP-based DFB lasers and optical amplifiers enable the scale, bandwidth, and efficiency required by global hyperscale data centers.

This is a rare opportunity to work at the device physics layer of the AI revolution, where your innovations directly influence how data moves inside the world's most advanced computing systems. If you're driven to solve hard physics problems, translate theory into manufacturable designs, and see your work deployed at global scale, this role is for you.

What You'll Do

- Lead the design and development of high-power InP-based DFB laser diodes for next-generation optical interconnects
- Own device innovation from concept through qualification and transfer to volume manufacturing
- Design epitaxial structures, waveguides, gratings, and device geometries to optimize power, efficiency, and spectral performance
- Develop and refine III-V fabrication processes aligned with high-yield production
- Drive mask layout and photonic design implementation
- Perform deep electro-optical characterization, root cause analysis, and performance optimization
- Establish structure–process–performance correlations using data-driven methods
- Collaborate across epitaxy, fabrication, packaging, and systems teams to deliver fully integrated solutions
- Contribute to IP generation, publications, and next-generation product roadmaps

What Sets This Role Apart

- Direct impact on AI hyperscale infrastructure. Your designs will be deployed globally
- Work at the InP device layer, where performance breakthroughs are created, not just integrated
- Fast execution environment with real ownership and visibility
- Opportunity to out-innovate larger competitors with agility and technical depth
- Strong platform for technical leadership and patent creation

What You Bring

- PhD in Electrical Engineering, Physics, Materials Science, or related field
- 5+ years of hands-on experience in optoelectronic device development
- Deep expertise in:
    - Semiconductor laser physics and modeling
    - InP-based DFB laser design (gratings, epitaxy, mode control)
    - Epitaxial growth (MOCVD/MBE) and III-V processing
    - Electro-optical characterization and failure analysis
- Proven track record of delivering high-performance laser devices from concept to production
- Strong analytical mindset with the ability to translate complex physics into manufacturable solutions
- Creativity, urgency, and a builder's mentality

Compensation & Benefits

- Highly competitive base salary
- Performance-based bonus
- Equity participation (pre-IPO upside)
- Comprehensive benefits package

Work Location:
Factory-based in Danvers, MA near I-95 and US Route 1.

About SemiNex
Founded in 2003, SemiNex is a U.S.-based leader in high-power infrared InP laser diodes and semiconductor optical amplifiers. Our technology is deployed in some of the most demanding environments from space and defense to industrial and telecom systems. We are now expanding rapidly into data center and AI-driven optical architectures, where increasing optical power is critical for scaling bandwidth and enabling dense optical fabrics.