

Abstract Submitted  
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**Development of a stable, low-cost diode laser system for use in atom optics experiments**<sup>1</sup> ERYN C. COOK, PAUL J. MARTIN, DANIEL A. STECK, University of Oregon — We present the design and characterization of an external cavity diode laser system optimized for high stability, low cost, and ease of in-house assembly. The Littrow cavity is hermetically sealed, CNC machined from a single aluminum block to reduce sensitivity to temperature changes and mechanical vibrations, and features a stiff and light diffraction grating arm for low-frequency noise suppression. A custom-molded silicon external housing further isolates the system from environmental noise. Beam shaping, optical isolation, and fiber coupling are integrated, and the design is easily adapted to many commonly used wavelengths. We present resonance data and linewidth and stability characterization of the new design.

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