

Abstract Submitted
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Diode-Pumped Dye Laser Using a Tapered Optical Fiber BRIAN PATTERSON, JAMES STOFEL, ELLIOT MYERS, RANDY KNIZE, U. S. Air Force Academy — We describe efforts to construct a simple dye laser based on a single-mode optical fiber. Light from a diode-pumped solid state laser ($\lambda = 532$ nm) is launched into the fiber. The fiber is tapered to a diameter of approximately 1 μ m and placed in Rhodamine 6G laser dye. The pump light interacts with the gain medium through the evanescent field outside the fiber causing stimulated emission, which couples back into the fiber. Mirrors on each end of the fiber provide the necessary feedback for lasing, and a grating is used to narrow the spectral output. We plan to characterize the lasing threshold and output spectrum of the laser. This has been a good project for undergraduate students to learn about lasers and optics.

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