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Influence of temperature on laser diode inside external cavity diode laser

We study the influence of temperature on laser diode inside an external cavity diode laser (ECDL) with a cateye reflector mirror type. This type of ECDL uses a focused beam of laser directed to an external mirror and reflected back to the laser to adjust the laser frequency with the variation of the cavity length. The input current and temperature of the ECDL can also be adjusted to a proper frequency. However, the influence of the temperature has a strongly effect on the laser. Therefore, the study of the temperature variation has been conducted. The cavity length of the ECDL was fixed during the experiments. The laser wavelength was measured by a spectrometer. A rubidium saturated absorption spectroscopy was also employed to monitor the D2 hyperfine transitions for the optimization conditions.

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