

Intensity modulation of a hybrid integrated diode laser

C.J. Karels A. van Rees, P.J.M. van der Slot, and K.J. Boller

LPNO, University of Twente, Enschede

Hybrid integrated diode lasers are compact, widely tunable and can be designed to have extremely low intrinsic line width. Here we investigate the intensity modulation response of a such a laser having a tuning range of 100 nm around 1550 nm. Utilizing a vector network analyzer, the modulation response is measured when the lasing wavelength is detuned from the peak in cavity reflectivity. The intensity modulation response is found to be flat up to 800 MHz for various nominal laser wavelengths. For a modulation frequency of 2.5 GHz a resonance was found that we associate with the photon-photon resonance. Depending on the laser settings, both single longitudinal mode operation and mode locking was observed when the injection current was modulated.

