Abstracts

Spectral Characteristics of Semiconductor Lasers with Optical Feedback

L. Goldberg, H.F. Taylor, A. Dandridge, J.F. Weller and R.O. Miles. "Spectral Characteristics of Semiconductor Lasers with Optical Feedback." 1982 Transactions on Microwave Theory and Techniques 30.4 (Apr. 1982 [T-MTT] (Joint Special Issue on Optical Guided Wave Technology)): 401-410.

Optical feedback-induced changes in the output spectra of several GaAlAs lasers operating at 0.83 µm are described. The feedback radiation obtained from a mirror 60 cm away from the laser is controlled in intensity and phase. Spectral line narrowing or broadening is observed in each laser depending on the feedback conditions. Minimum linewidths observed with feedback are less than 100 kHz. Improved wavelength stability is also obtained with optical feedback resulting in 15 dB less phase noise. Analytical model for the three-mirror cavity is developed to explain these observations.

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