Abstracts

Relationship Between Carrier-Induced Index Change and Feedback Noise in Diode Lasers

D.M. Fye. "Relationship Between Carrier-Induced Index Change and Feedback Noise in Diode Lasers." 1982 Transactions on Microwave Theory and Techniques 30.10 (Oct. 1982 [T-MTT] (Special Issue on Optical Guided Wave Technology)): 1663-1666.

An improved theoretical analysis of single-mode diode laser dynamics reveals that feedback-induced intensity pulsations and frequency modulation are consequences of the carrier-dependent modal refractive index of the laser cavity. A stability criterion based on injection-locking theory indicates that gain-guided diode lasers are more likely to exhibit feedback-induced pulsations than are index-guided devices. Numerical simulation of feedback-induced noise is shown to be in excellent agreement with previously reported experimental data.

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