# Abstracts

## Optical Phase Modulation in an Injection Locked AlGaAs Semiconductor Laser

*S. Kobayashi and T. Kimura. "Optical Phase Modulation in an Injection Locked AlGaAs Semiconductor Laser." 1982 Transactions on Microwave Theory and Techniques 30.10 (Oct. 1982 [T-MTT] (Special Issue on Optical Guided Wave Technology)): 1650-1657.*

Optical phase modulation obtained by injecting coherent CW light into a directly frequency-modulated semiconductor laser is reported. Phase modulation at up to a 1 GHz modulation frequency has been obtained without compression for a 1.4 GHz half locking band-width. Phase deviation can be represented by the ratio of the original FM deviation to the locking half bandwidth. The phase deviation normalized by the frequency deviation is inversely proportional to the cutoff modulation frequency. A static phase shift of pi took place with a 0.48 mA drive current change in the injection locked laser. Reduction in FM noise by means of CW light injection and FM noise accumulation in cascaded injection locked laser amplifiers are discussed, together with the optimum design for an injection locked repeater system.

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