

## Homodyne Demodulation Scheme for Fiber Optic Sensors Using Phase Generated Carrier

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*A. Dandridge, A.B. Tveten and T.G. Giallorenzi. "Homodyne Demodulation Scheme for Fiber Optic Sensors Using Phase Generated Carrier." 1982 Transactions on Microwave Theory and Techniques 30.10 (Oct. 1982 [T-MTT] (Special Issue on Optical Guided Wave Technology)): 1635-1641.*

A method of homodyne demodulation using a phase generated carrier is described and experimentally demonstrated. The method has a large dynamic range, good linearity, and is capable of detecting phase shifts in the microradian range. The detection scheme obviates the phase tracker resetting problem encountered in active homodyne detection schemes. Two methods of producing the carrier are presented, one employing a piezoelectric stretcher, the other using current induced frequency modulation of the diode laser source. These two methods are compared. The origins of the noise limiting the system are briefly discussed.

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