Abstracts

Frequency Modulated Heterodyne Optical Fiber Sagnac Interferometer

B. Culshaw and I.P. Giles. "Frequency Modulated Heterodyne Optical Fiber Sagnac Interferometer." 1982 Transactions on Microwave Theory and Techniques 30.4 (Apr. 1982 [T-MTT] (Joint Special Issue on Optical Guided Wave Technology)): 536-539.

This paper describes a new approach to the detection of rotation rate using the optical fiber Sagnac interferometer. An inherently reciprocal heterodyne system gives the advantages in terms of signal-to-noise ratios (SNR's) of heterodyne detection, while independent electronic monitoring of each propagation path through the interferometer significantly enhances signal processing flexibility. The system may thus be used as a probe to evaluate fiber properties in a way compatible with other architectures, and these measurements should lead to advances in performance characteristics. A prototype system has established noise levels in the region of 100°/h, and improvement to the signal processing will soon improve on this figure.

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