



Fiber-optic rotation sensors and related technologies proceedings of the first international conference, MIT, Cambridge, Mass., USA, November 9-11, 1981 /

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Currently there is considerable interest in the application of optical methods for the measurement of absolute rotation. Active approaches, so-called ring laser gyros, have been under serious development for at least 15 years. More recently, passive approaches using ring resonators or multi turn fiber interferometers have also demonstrated much promise. The only previous conference devoted exclusively to optical rotation sensors, held in 1978 in San Diego, California, was organized by the Society of Photo-optical Instrumentation Engineers (S.P.I.E.). Although the main emphasis at that conference was on ring laser gyros, a number of papers were also included that described the early development of fiber gyroscopes. Since then the field of fiber optic rotation sensors has grown so rapidly that a conference devoted primarily to this subject was needed. The First International Conference on Fiber-Optic Rotation Sensors was held at the Massachusetts Institute of Technology, Cambridge, Massachusetts, November 9-11, 1981. The purpose of the conference was to bring together the many researchers and interested personnel from universities, industry, and government to discuss and exchange ideas on the many recent developments in fiber optic rotation sensors and related technologies. The program consisted of tutorial papers as well as invited and contributed papers

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Contenido: Fiber-Optic Rotation Sensors Tutorial Review -- Fiber-Optic Rotation Sensors Bibliography -- Theoretical Basis of Sagnac Effect in Fiber Gyroscopes -- Polarization and Depolarization in the Fiber-Optic Gyroscopes -- Polarization Problems in Optical Fiber Gyroscopes -- Scattering Matrix Analysis on the Use of a Wide-Band Laser Source in a Passive Fiber Rate Sensor -- Numerical Modeling of Dual Polarization Interferometric Gyros and Sensors -- Reciprocity Properties of a Branching Waveguide -- Multimode Fiber Gyroscopes -- Integrated Optics -- Progress on Integrated Optic Waveguide Devices for Fiber Gyro Applications -- Guided-Wave Electrooptic Modulators -- Single Mode Fiber Optic Components -- Coupling and Multiplexing Between Single Mode Optical Fibers -- Polarization Preserving Single Mode Fiber Optic Coupler -- High Kilohertz Frequency Fiber Optic Phase Modulators -- Polarization Control for an Optical Fiber Gyroscopes -- Polarization-Maintaining Fibers -- Elliptically Cored Polarization Holding Fiber -- Fabrication and Properties of Low Birefringence Spun Fibers -- Attempt to Draw a Circular Polarization Conserving Fiber -- The Characterization of Polarization-Holding in Birefringent Single-Mode Fibers -- Polarization Properties of Monomode Optical Fibres: The Use of P.O.T.D.R. to Determine Spatial Distributions -- Induced Circular Birefringence and Ellipticity Measurement in a Faraday Effect Fiber Ring Interferometer -- Single Longitudinal Mode Modified CSP Injection Laser for Single-Mode Optical Fiber -- The Temporal Coherence of Various Semiconductor Light Sources Used in Optical Fibre Sensors -- Noise in Diode Lasers -- All Single Mode Fiber Optic Gyroscopes -- Digital Fiber Optic Rate Sensor Development -- Fiberoptic Rotation Sensor: Analysis of Effects Limiting Sensitivity and Accuracy -- Investigations on a Fiber Gyro for Heading Reference Applications -- Dual Polarization Gyro -- A Fiber Gyroscopes Based on a Two Frequency Zeeman Laser -- Closed Loop, High Sensitivity Fiberoptic Gyroscopes -- Compact Fiber-Optic Gyro -- Fiberoptic Gyro Using Magneto-Optic Phase Nulling Feedback -- Heterodyne Fibre Gyro With Complete Reciprocity -- Optical Fiber Laser Gyro: Homodyne and Heterodyne Detections -- Intensity Dependent Nonreciprocal Phase Shift in a Fiberoptic Gyroscopes -- Fibre Gyro Performance in the Presence of External Magnetic Fields -- A Nonreciprocal Optical Effect in Optical Gyroscopes -- Analysis of Noise in Phase Detection in a Fiber Optic Rate Sensor -- Re-Entrant Fiber Optic Rotation Sensors -- Forced Reciprocity Using Phase Conjugation -- Large Enhancement of the Sagnac Effect in a Nonlinear Ring Resonator and Related Effects -- Synchronous Fiber-Optic Gravitational Telescopes -- Geometrical Fiber Configuration for Isolators and Magnetometers -- Fiber Optic Strain Sensors -- Fiber Optic Sonar Sensor -- Fiber Optic Accelerometer -- An Affair to Remember -- Inertial System Market Potential -- Index of Contributors

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