

Sagnac Ring Laser Gyroscope Based on Coherence de Broglie Waves

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Sagnac ring laser gyroscope (SRLG) is the most sensitive optical sensor, where it has been applied for inertial navigation systems as well as geodesy, where its rotation sensitivity is limited by many-wave optics in a classical regime given by an optical cavity. Here, a completely different type of SRLG is resented using coherence de Broglie waves (CBW) in a modified scheme of SRLG, where the modification is composed of infinite series of superposed Mach-Zehnder interferometers. The observed angular resolution of the CBW-based SRLG overcomes the classical regime, where the mechanism of the device is not only nonclassical but also macroscopic.