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**Phase conjugate Sagnac interferometer based on degenerate four-wave mixing using evanescent field** LIJUAN GU, ZIZHAO GAN, State Key Laboratory of Mesoscopic Physics, School of physics, Peking University, STATE KEY LABORATORY OF MESOSCOPIC PHYSICS, SCHOOL OF PHYSICS, PEKING UNIVERSITY TEAM — We propose a phase conjugate Sagnac interferometer based on degenerate four-wave mixing using evanescent field to improve the performance of fiber optic gyroscope. Degenerate four-wave mixing relies on interaction between two pump waves and evanescent fields surrounding the waveguide. By decreasing the radius of the waveguide, we can get sufficient fraction of the evanescent field. Degenerate four-wave mixing process can generate phase conjugated wave of the signal field and they are coherent intrinsically. In a rotational system, the two conjugated waves possess phase difference that is proportional to the rotational velocity of the system. So by measuring the phase difference, we can get the rotational information of the system and this method can avoid noises caused by wave propagation in fiber.

Lijuan Gu  
State Key Laboratory of Mesoscopic Physics,  
School of physics, Peking University

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