



Simulation and analysis of geophysical phenomena in individually oriented ring lasers

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Ring Laser Gyroscopes (RLGs) are instruments measuring rotation using the Sagnac effect. This is a frequency difference between two counter-propagating laser beams traveling the same path in the same condition along an enclosed area rotating in the inertial frame. The observed Sagnac frequency is proportional to the rotation speed and the projection of the normal vector of the instrument onto the rotation axis. Since the instruments are tightly attached to the Earth, having enough sensitivity and stability, geophysical effects become visible, as e.g. solid Earth tides and diurnal polar motion. The problem is commonly solved for horizontally oriented RLG. The work is pointed out to investigate the effects and the analysis of it in individually oriented ring lasers.