



Observation of the Earth's dynamic ellipticity with a large ring laser gyroscope

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With the rapid advance of large ring laser gyroscopes, their promising applications in geoscience (such as, detection of Earth's tides, Earth's free oscillations and seismic waves etc.) have been demonstrated impressively by several ring laser groups. In this work we will report on one more application, which is the determination of the Earth's dynamical ellipticity by measuring the retrograde diurnal polar motion at the K_1 wave with a single large ring laser. The Earth's astronomical dynamical ellipticity $H_d = 0.00325(6)$ is estimated by means of 168 days of continuous data from the G-ring, located in Wettzell, Germany, which is the most stable one amongst the currently running large ring laser gyroscopes.