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Experimental testing for the GRACE Follow-On Laser Ranging Interferometer

Daniel Schütze (1,2) and the LRI Team

(1) Albert-Einstein-Institut Hannover, Max-Planck-Institut für Gravitationsphysik, Hannover, Germany, (2) Institut für Gravitationsphysik, Leibniz-Universität Hannover, Hannover, Germany

The GRACE satellites (Gravity Recovery and Climate Experiment) use satellite-to-satellite tracking via microwave ranging to collect data about spatial and temporal variations in the gravity field of the earth. A GRACE Follow-On mission will be launched in 2017. The GRACE Follow-On satellites will contain a Laser Ranging Interferometer in addition to the microwave ranging system to improve the inter-satellite distance measurements. Essential parts of the Laser Ranging Interferometer are a Triple Mirror Assembly to establish an off-axis roundtrip path between the satellites and a steering mirror setup to account for satellite pointing. A laboratory test setup of the GRACE follow-on interferometer is presented with which these key components are tested.