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Breadboard testing of the Laser Ranging Instrument for the GRACE follow-on mission

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GRACE (Gravity Recovery and Climate Experiment) determines the Earth′s field of gravity based on distance measurements between two satellites provided by a microwave ranging system. For the GRACE follow-on mission, currently planned to be launched in 2017, we are developing a Laser Ranging Instrument to increase the accuracy of the ranging by an order of magnitude. We are building laboratory experiments to test essential concepts such as acquisition, wavefront sensing and beam steering.
Here we summarize the present status of the breadboard experiments of the Laser Ranging Instrument.