



The BepiColombo laser altimeter (BELA): Technical approach

N. Thomas (1), T. Spohn (2), **K. Seiferlin** (1), J. Oberst (2), H. Michaelis (2), K. Gunderson (1), J. A. Whitby (1) and the BELA team

(1) Physikalisches Institut, Universität Bern, Switzerland, (2) Deutsches Zentrum für Luft- und Raumfahrt - Institut für Planetenforschung, Berlin, Germany
(karsten.seiferlin@phim.unibe.ch)

The BepiColombo Laser Altimeter (BELA) is among the instruments that have been selected for flight aboard the MPO of ESA's BepiColombo mission to Mercury. A consortium led by Physikalisches Institut Universität Bern, Switzerland) and Institut für Planetenforschung (DLR, Berlin, Germany) will develop the first European laser altimeter for planetary exploration. The instrument follows the classical principle of direct detection of the returned laser light using a 25 cm telescope. The receiver telescope is made of electroformed nickel in order to save mass. The transmitter is based on a longitudinally pumped ND:YAG laser with 50 mJ pulses and about 5 ns pulse duration, operating at 10 Hz. The range finding and pulse detection uses digital filtering of return pulse shapes. Operation is possible on the dayside as well as on the night side of Mercury, but limited to about 1200 km altitude. We will present the instrument concept as well as the set-up of new test, verification and calibration facilities that are required for this type of instrument.