Dipartimento
di Fisica
e Astronomia
Galileo Galilei

INFN
PADOVA

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Lunar Laser retroreflectors (LRRs) for GW detection on the Moon

LRRs have recently been proposed by the international collaboration LSGA (Lunar Seismic Gravitational Antenna) led by S. Katsanevas (et al) for the Call for Ideas for ESA's lunar Large Logistics Lander (EL3, 2020) and for ESA's Fast Call # 2 (2022). The basic ideas is to perform an interferometric strainmeter experiments on the surface of the Moon using evolved lunar LRRs systems in place of the mirrors à la Virgo/LIGO, on arms of few to several km length on the surface of the Moon. Such a systems directly inherit from the one under development by INFN (CSN2 Science Committee) and ESA, dubbed MoonLIGHT, equipped with dual gimbal pointing actuators and robotic dust cover. MoonLIGHT is under construction at the SCF_Lab of INFN-LNF, Frascati, and will be launched to the Moon in 2024 with NASA-CLPS flight, under a dedicated NASA-ESA MoU. Essential LSGA instruments include the lunar surface laser and seismometer provided by the Univ. of Paris (P. Lognonné et al).

Primary authors: DELL'AGNELLO, Simone (INFN-Frascati); KATSANEVAS, Stavros; LOGNONNÉ, Philippe (University of Paris); PORCELLI, Luca (Istituto Nazionale di Fisica Nucleare); MUCCINO, Marco (L); DELLE MONACHE, Giovanni Ottavio (Istituto Nazionale di Fisica Nucleare); SALVATORI, Lorenzo (LNF); TIBUZZI, Mattia (LNF)

Presenter: DELL'AGNELLO, Simone (INFN-Frascati)

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