

Lunar Gravitational-wave Antenna

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The Virgo and LIGO instruments and their first observations are amazing, but they are only the very first step into the new era of GW science and astronomy. The prospect to detect signals from kilometer-scale sources out to redshifts of 100 with the proposed Einstein Telescope and Cosmic Explorer, or the merger of massive black holes with LISA is mind-boggling. These detectors are part of a wider effort to expand the frequency band of gravitational-wave observations, but so far, the decihertz band is left out, which harbors many interesting sources of GWs. In this talk, we will present the Lunar GW Antenna (LGWA), which was proposed in 2020 to observe GWs on the Moon also in the decihertz band. It exploits the Moon itself as a giant antenna for GWs. Its pathfinder mission Soundcheck was recently selected by ESA into the Reserve Pool of Science Activities for the Moon. The LGWA collaboration is now working hard to establish the LGWA science case and to develop the technologies that will enable breakthrough GW science on the Moon.

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