



# Opportunities for Breakthrough Science with Lunar Exploration

## Jan Harms



Jan Harms is professor of physics at the Gran Sasso Science Institute. He earned his PhD in gravitational-wave detection at the Albert-Einstein-Institute in Germany and spent several years in the USA to work with the LIGO Scientific

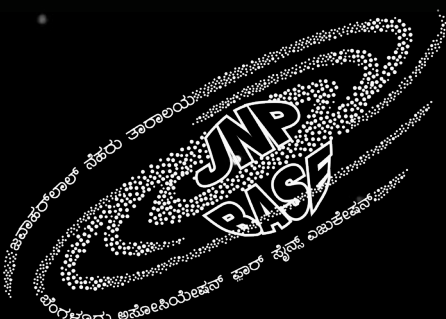
Collaboration before joining the Virgo Collaboration in Italy. He is co-chair of the Instrument Science Board of the Einstein Telescope, and coordinator of the Lunar Gravitational-wave Antenna project.

The Moon might become the first extra-terrestrial location with permanent human settlements. Lunar exploration programs exist or are under development in all major space agencies. Commercial transport services to the Moon will play an increasing role and revolutionize lunar exploration. The Moon is not only our nearest neighbor, but it is also in many ways a unique object in our solar system. It might well be the quietest object in the solar system, and some regions on the Moon might be the coldest in the solar system. It is tidally locked to Earth and therefore having one side always facing away from Earth to create a shadow for radio emissions. These properties are all important for lunar exploration, and even more so for science. Several revolutionary missions have been proposed exploiting these characteristics of the Moon, which will bring us unique insight into our universe and the formation history of the Earth-Moon system.

4 pm, Sunday, April 16th, 2023  
Jawaharlal Nehru Planetarium, Bengaluru

Registration Link: [bit.ly/kwk\\_apr2023](https://bit.ly/kwk_apr2023)

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