Contribution ID: **9** Type: **not specified**

Development of a Moon Emulator for the Lunar Gravitational-Wave Antenna (LGWA)

The Lunar Gravitational-Wave Antenna (LGWA). The development of such a mission requires the qualification of seismometers and other cryogenic technologies under representative lunar conditions. To support this effort, a laboratory-scale Moon Emulator is being developed to reproduce high-vacuum and cryogenic environments for testing and validation.

As part of this project, the presented work focuses on the design of the cryogenic vacuum chamber that's the interface between the cryocooler and the main experimental chamber. The chamber is being developed to provide a modular and maintainable platform for suspended thermal links and future experimental payloads while ensuring compatibility with cryogenic operation and high-vacuum requirements. Particular attention is given to mechanical stability, accessibility, and future integration with the complete Moon Emulator.

The current work is in the design phase. Future activities will include structural and thermal analyses, fabrication, and experimental validation, contributing to the development of technologies required for the LGWA mission.

Primary author: SINGH, Tarun (Gran Sasso Science Institute, L'aquila, Italy)

Presenter: SINGH, Tarun (Gran Sasso Science Institute, L'aquila, Italy)

Session Classification: Payload