



Lunar Water Spectrometer

(Asclepios x Xplore)

The goal of this project would be to develop a spectrometer able to detect the presence of H₂O in the lunar soil and that could fit a lunar rover.

Laboratory: GR-OST
Number of students: 1 (Bachelor or Master)
Section: CH, PH
Status: Available



Description of the project

In the last two decades, an exciting challenge of space exploration has been the detection of water on the surface of the Moon. Last year, NASA confirmed to have found H₂O in the sunlit areas of the Moon and that water is widely distributed on the lunar surface. Identifying the presence of water sources near future human colonies would open the possibility of eliminating the need for astronauts to bring their drinking supplies, oxygen, and fuel.

The goal of this semester project is to design a spectrometer that could fit into the EPFL Xplore rover. The first step will be the conceptual development of such an instrument.

Description of the student's work and mission

The student will identify a suitable method for the spectroscopic detection of lunar water, basing on a literature review of state-of-the-art technologies and adapted to the specific needs of the Asclepios/Xplore missions. Focus will be on approaches used by international space agencies for on-site analysis of foreign celestial bodies. At the end of the semester, the student should provide the design of a spectrometer that could fit the scientific payload of the EPFL Xplore rover.

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