The Advanced Small Analyzer for Neutrals (ASAN)

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Up to 20 percent of the solar wind impinging on the lunar surface is reflected back to space as energetic neutral atoms. Measurements from altitudes as low as 100km by the Sub-keV Atom Reflecting Analyzer (SARA) instrument on board of the Indian Chandrayaan-1 mission revealed structures in the energetic neutral atom flux that are dominated by local magnetic fields on the surface. The reasons for the high reflection rate however are still enigmatic.
The Advanced Small Analyzer for Neutrals (ASAN) is a small (650g) energetic neutral particle sensor on board of the rover of the Chinese Chang'E 4 mission. Chang'E 4 will land in 2018 on the lunar far-side in the Aitken Basin. It will be the first time an energetic neutral atom sensor is deployed on the lunar surface. From a vantage point of only a few decimeters above the regolith surface, ASAN will measure energy spectra of energetic neutral atoms originating from reflected solar wind ions under different solar wind illumination conditions. The placement on a rover will make it possible to move ASAN to surface areas that are undisturbed by the lander and to investigate a variety of different locations.