Lunar Cube Sat Mass Spectrometer

Stojan Madzunkov, Dragan Nikolic
Jet Propulsion Laboratory, Caltech

Lunar Cube Sat Mass Spectrometer (LCMS) is a Paul trap mass spectrometer, based on JPL's Quadrupole Ion Trap Mass Spectrometer (QITMS), develop and build (DALI) to operate on the Lunar surface. Its main function is to measure the content of the Lunar exosphere (in the mass range 2 -150amu with resolution of 1000) in the open ionizer architecture (no pumping). LCMS has its own data processing unit and requires from the lander only power (28V, 30W) and data link (RS232, WiFi or Ethernet). LCMS has sensitivity to measure noble gases content within Lunar exosphere in the 1h time frame. Here we will present the capability of our instrument demonstrated in the lab as well as the simulated response from Lunar exosphere.