

Present status of the active X-ray spectrometer development for future lunar landing mission

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The Active X-ray Spectrometer (AXS) consisting of an active X-ray generator and a silicon drift detector (SDD) has been developed for future lunar landing missions. The AXS can determine the elemental composition of rock samples by X-Ray Fluorescence spectroscopy which provides the geochemical data of rock samples. The AXS has each outstanding features as excellent energy resolution, compact and light weight, low power consumption, and no high voltage power supply and no radioisotopes. The X-ray generator is made of some pyroelectric crystals, peltier device and thin metal target. The instrument of the AXS and the present status of its development are presented and discussed.

Keywords: X-ray fluorescence spectroscopy, active X-ray spectrometer, lunar landing mission, elemental analysis