

Development of gamma-ray spectrometer for in-situ observations of elemental composition for SELENE-2

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For in-situ elemental analysis of lunar surface, we are developing gamma-ray spectrometer (GRS) for SELENE-2 mission. The GRS primarily measures K, Th and U abundances of the lunar surface and also can measure Fe and possibly other major elements.

To determine the elemental abundances with satisfactory accuracy, the energy resolution of the gamma-ray detector is an important factor. In view of operation on the lunar surface during lunar day, thermal feasibility of the instruments is important. Therefore we decided to use LaBr₃ scintillator, which has high energy resolution and can be used in high temperature environment.

Here we summarize science goals of the gamma-ray detector, expected sensitivity and current status of GRS development.

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