

SOLAR Neutron and Gamma-ray Spectroscopy Mission: SONGS

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Fast neutrons generated by the interaction between ions and the solar atmosphere are important observation probes to clarify the ion acceleration mechanism in the Sun, but so far neutrons have been detected from only 12 X-class solar flares in the highland on the ground due to the influence of atmospheric absorption. As for observations in space, SEDA-AP at the International Space Station continued to operate until 2018 and succeeded in neutron detections from 52 solar flares, but there are currently no dedicated space missions. In order to overcome this situation, we have been designing and developing 3U CubeSat and novel neutron / gamma ray sensors since 2018 with the aim of performing satellite observations from outer space. The sensor consists of the multi-layered plastic scintillator bars readout with Si PM, which is a semiconductor photosensor, and detects fast neutrons from the tracks of ejected protons by elastic scattering. Furthermore, by placing a GAGG scintillator array at the bottom, it is designed to be sensitive to gamma rays based on the principle of the Compton camera. In this presentation, we will report on the scientific purpose and the development status of CubeSat and neutron / gamma-ray sensors.

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Collaboration

other Collaboration

Subcategory

Future projects

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