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Solar Flare Hard X-ray Polarimetry with the CUBesat Solar Polarimeter (CUSP) mission

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The CUBesat Solar Polarimeter (CUSP) project is a CubeSat mission planned for a launch in low-Earth orbit and aimed to measure the linear polarization of solar flares in the hard X-ray band by means of a Compton scattering polarimeter. CUSP will allow to study the magnetic reconnection and particle acceleration in the flaring magnetic structures of our star. CUSP is a project in the framework of the Alcor Program of the Italian Space Agency aimed to develop new CubeSat missions. It is undergoing a 12-months Phase B that started last December.

The Compton polarimeter on-board CUSP is composed of two acquisition chains based on plastic scintillators read out by Multi-Anode PhotoMultiplier Tubes for the scatterer part and GAGG crystals coupled to Avalanche PhotoDiodes for the absorbers. An event coincident between the two readout scheme will lead to a measurement of the incoming X-ray's azimuthal scattering angle, linked to the polarization of the solar flare in a statistical manner. The current status of the CUSP mission design, mission analysis and payload scientific performance will be reported. The latter will be discussed based on preliminary laboratory results obtained in parallel to Geant4 simulations.

Eligibility for "Best presentation for young researcher" or "Best poster for young researcher" prize

Yes

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