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SIXS module Dose Mapping and X-ray Detector - Bepicolombo mission

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BepiColombo is European Space Agency's (ESA) mission to Mercury. It has been named after the Italian mathematician and engineer Giuseppe (Bepi) Colombo, known especially for his works on Mercury. The spacecraft will set off in 2013 on a journey lasting about six years.

One of the scientific instruments onboard the mission will be SIXS, Solar Intensity X-ray and particle Spectrometer. It is developed in a Finnish consortium headed by the Observatory of the University of Helsinki. The Sensor Unit of SIXS consists of two parts: an X-ray detector and a particle detector for protons and electrons. The X-ray part consists of three Silicon sensors, one of which will always see the sun. The particle detector package consists of a core sensor (CsI scintillator with a photodiode) surrounded by five thin Si surface sensors. The particle sensors are covered by a collimator.

Since SIXS measures the X-ray and particle fluxes coming from the Sun, its data are vital for the calibration of the MIXS (Mercury Imaging X-ray Spectrometer) instrument, which measures the X-ray fluorescence radiation coming from the surface of Mercury.

The Geometry description has been directly imported from SolidWorks CAD models and then the Fastrad has been used to obtain the GDML files, which can be parsed to the Sector Shielding Analysis Tool (SSAT). In this presentation the results obtained using SSAT will be discussed.

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