

MATERIALS AND STRUCTURES SYMPOSIUM (C2)

Space Structures II - Development and Verification (Deployable and Dimensionally Stable Structures) (2)

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HIGH FLUX (13 SC) SOLAR SIMULATOR DEVELOPMENTS FOR SOLAR ORBITER SUN SENSOR
AND EUI INSTRUMENTS**Abstract**

A high flux (>13 solar constant) solar simulator for Solar Orbiter sun sensor characterization is presented. It has been developed to demonstrate the feasibility of the sun sensor concept in the framework of the Solar Orbiter ESA M-class mission. Solar Orbiter shall withstand a solar flux as high as 13 solar constants when at its 0.28AU perihelion. Therefore the sun sensor is a critical element for the spacecraft to ensure its heat shield is always directed towards the sun.

Simulating the high solar flux is a highly valuable asset for characterization of the instrument. It improves thermal balance representativity and avoids taking assumptions on thermo-optical properties. In the article, the solar simulator facility is described as well as related sun sensor test requirements.

These developments fit in a common need for the instruments on board the Solar Orbiter spacecraft. They are precursor of a larger sun simulator for the Extreme UV Imager (EUI) payload at Centre Spatial de Liege, for which requirements and preliminary concepts are presented.