

Performance of the Extreme Ultraviolet Imager (EUI) High-Resolution Imager (HRI-EUV) telescope: from ground calibration to first in-flight images, and future EUV space solar instruments

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Since the PROBA2 mission, the Royal Observatory of Belgium has been using the PTB synchrotron light source for the calibration of EUV solar space instruments such as the Extreme Ultraviolet Imager (EUI) and optical components. EUI is part of the remote sensing instrument package of the ESA/NASA Solar Orbiter mission that was launched on February 11, 2020, to explore the inner heliosphere and observe the Sun from vantage points close to the Sun and out-of-the-ecliptic. One of the three EUI telescope is the EUV high-resolution imager (HRI-EUV), based on an off-axis Cassegrain design optimized to observe the solar corona at a wavelength of 17.4 nm. The EUI instrument [1] was calibrated in April 2017 at PTB, after several measurement campaigns for its filters, mirrors, and CMOS/APS detectors. On May 12, 2020, EUI acquired its first solar images and since then several commissioning operations were run to assess in-flight instrument performance.

In this talk, we will also give an overview of EUI and HRI-EUV design, ground calibration campaigns, and in-flight performance. We will also introduce future EUV space solar instruments such as the Lagrange eUV Coronal Imager (LUCI) onboard Lagrange and the Solar Spectral Irradiance Monitor (SoSpIM) onboard Solar-C_EUVST, and their calibration campaigns.

[1] P. Rochus et al., 2020, "The Solar Orbiter EUI instrument: The Extreme Ultraviolet Imager", *Astronomy and Astrophysics*, vol. 642, 2020. doi:10.1051/0004-6361/20193666