

# Development and Characterization of Wide-Bandgap Photodetectors Tailored for the EUV-VUV Solar Radiometer SOSPIM

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In 2009, the ESA microsatellite PROBA2 was launched, carrying a radiometer in its scientific payload designed to monitor solar emissions across four broadband channels in the UV-VUV spectrum. This instrument, named LYRA, was developed under the lead of the Royal Observatory of Belgium and featured pioneering wide-bandgap photodetectors made from diamond, which were particularly well-suited for observing high-energy photons. Notably, this represented the first use of such detectors in space. Prior to launch, the filters and detectors underwent rigorous characterization at the PTB laboratory, and their performance was continuously monitored throughout the still on-going mission via regular in-flight calibration campaigns.

Building on this extensive experience, a new solar radiometer is currently under development. Named SoSpIM, the instrument is scheduled for launch in 2028 aboard JAXA's Solar-C mission, with the PMOD/WRC institute in Davos, Switzerland, serving as the Principal Investigator institute. The Royal Observatory of Belgium is responsible for selecting, providing, and characterizing the optical components, with much of the characterization work again carried out at PTB. As part of this effort, a new generation of AlN photodetectors has been developed. These detectors feature an adapted design to address some of the limitations identified in the LYRA detectors.

This presentation will provide an overview of the SoSpIM instrument and share results from the ground-based characterization campaigns of its optical components. A comparative analysis of their performance against the LYRA detectors will also be discussed.