

Radiometric Performance of AmonRa Bolometer for Deep Space Albedo Measurement

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The AmonRa instrument, as the primary payload of the Earthshine mission, is intended to obtain the Earth's global image and to observe the total solar irradiance and Earth reflectance for precise Earth global albedo measurement from the L1 halo orbit. We discuss the radiometric performance of the AmonRa bolometer optimized for the Earthshine mission using advanced end-to-end ray-tracing technique. The resulting optical system performance proves that the AmonRa bolometer design meets the science requirements successfully. The breadboard bolometer development strategy together with the bolometer design philosophy and the computational details for the performance optimization is presented.