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Near Infrared Spectro-Photometer instrument performances and capabilities

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ESA's mission Euclid launched in July 2023 was fully commissioned and since early 2024 is performing its nominal survey. Euclid performs an extra galactic survey ($0 < z < 2$) using visible and near-infrared light. To detect infrared radiation is equipped with the Near-Infrared Spectro-Photometer (NISP) instrument sensible in the $0.9\text{--}2\text{ }\mu\text{m}$ range. The NISP instrument will be extensively described, including its complete optical system that allows to perform spectrometry (using a Blue and Red Grisms) and photometry (using YE $0.95\text{--}1.21\mu\text{m}$, JE $1.17\text{--}1.57\mu\text{m}$, and HE $1.52\text{--}2.02\mu\text{m}$ filters); its focal plane array (0.56 deg^2 FoV) composed of 16 Teledyne's HAWAII-2RG with a total of 64 Mpx, with a 0.3 arcsec/px resolution; and the data reduction approach implementing with the on-board processing to derive the signal and mitigate the downlinked data load to ground. NISP capabilities will be described using examples of in-flight calibration results that enabled science results already achieved with the early release data what will be partially touch in this presentation

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Session Classification: The Euclid mission: current status, results from early observations, and future prospects

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