SHARK-NIR, first results of the commissioning at LBT

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Abstract

SHARK-NIR is an instrument which provides direct imaging, both coronagraphic and non-coronagraphic and with the possibility to perform dual-band imaging and low-resolution spectroscopy in Y, J and H bands, with the main scientific goal of detecting exoplanets, and characterizing already known planets, young stellar systems, jets and disks. SHARK-NIR takes advantage of the excellent performance of the Large Binocular Telescope AO systems, the wavefront sensors of which have been recently upgraded to SOUL. The latter is delivering a very good performance also at faint magnitude, opening to science otherwise difficult to be achieved, as for example AGN and QSO morphological studies. To fully exploit the just mentioned science cases, binocular observations will be performed using SHARK-NIR in combination with SHARK-VIS (operating in B, V, R and I bands) and LMIRCam of LBTI (operating from K to M bands), in a way to exploit coronagraphic observations in three different wavelengths. The instrument has passed the preliminary acceptance Europe in March 2022, being shipped immediately after at LBT, and re-integrated, installed and characterized daytime in three pre-commissioning run at the telescoped. SHARK-NIR had a very successful first light in January this year, and we will report of the results obtained in the three commissioning runs performed in the first half of 2023.

Keywords: LBT, XAO, Pyramid WFS, Coronagraphy, Planet finding

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