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**TAUKAM's first look at NEOs**

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**ABSTRACT**

With a correction plate diameter of 1.34m the Tautenburg 2-m telescope still represents the largest imaging Schmidt telescope. Unlike for the Palomar and Kiso Schmidt telescopes, there was no plan for full sensor coverage of its focal plane yet. In 2014 our proposal got approved to replace the outdated 2k x 2k sensor with a state-of-the art imaging device. Funding for the project was provided by the federal state of Thuringia. Eventually, end of 2018 the new prime-focus imager TAUKAM had first light. It is a 1110S series camera from Spectral Instruments incorporating a 6144 x 6160 pixel CCD, manufactured by e2v, which provides a field-of-view of ~1.7 square degrees,. First results of NEOCP imaging with TAUKAM already confirmed that its capabilities boost this kind of observations considerably. The pixel scale of 0.775 arcsec provides a better sampling of both target PSF and stellar trails, thus improving astrometric accuracy. The low read-out noise as well as the larger spectral bandwidth offered by dielectric filters push the detection limit to fainter magnitudes. The read-out noise increases only by a factor of two at the highest clock speed. This allows us to take full-frame images by default for targets with low angular velocity ( $\leq 1''/\text{min}$ ) which represent ~30% of the total number. These frames will serve for detecting new objects, with particular emphasis on NEOs. This represents a novel aspect of our observational objectives which aimed exclusively at NEOCP so far. More-

over, the large field-of-view enables to target objects with larger uncertainties of the predicted position. Further improvements of the data pipeline allow us to rapidly disseminate the measured positions of NEOCP targets which is a requirement for identifying imminent impactors. In addition, the WCS reference frame is now tied to GAIA-DR2. With the help of the TAUkam instrument, the Thüringer Landessternwarte ensures an increased contribution to NEOCP and gets the opportunity to detect NEOs.

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