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BLACK HOLE TARGET OBSERVATION MANAGER - A NEW TOOL FOR AUTOMATIC TIME-DOMAIN ASTRONOMY

Abstract

In the era of large sky photometric surveys, rapid and reliable processing of CCD images plays a crucial role in characterising transient phenomena. The Black Hole Target Observation Manager (BHTOM) is a new tool based on Las Cumbres Observatory's TOM, developed under OPTICON RadioNet Pilot (ORP) H2020 programme for managing the observations of time-domain targets alerted by the surveys like Gaia, ZTF, or ASAS-SN. One of the most important features of BHTOM is an automatic calibration of photometric FITS images in order to obtain science-ready data points on light curves of observed targets. The system can be used to combine multi-wavelength photometric data from multiple telescopes and instruments within minutes from observations. In addition to photometric follow-up, we have developed the network of spectroscopic instruments, both of low- and high-resolution mode. Many world-class telescopes are used to obtain high-quality spectra, including 2-m Shamakhy Astrophysical Observatory (ShAO) telescope in Azerbaijan. We have obtained data for several interesting targets and based on that classified them to select target sample for intensive photometric monitoring. Therefore, the BHTOM can be widely used for a variety of time-domain applications.