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Optical photometry of high-energy sources from a College Observatory

We present a technical description of the Astronomical Observatory of the University of Jaén (UJA). Equipped with a 41 cm Schmidt-Cassegrain telescope on a robotic equatorial mount, this instrument is mainly devoted to educational tasks for Astronomy students and long-term photometric monitoring for research purposes. Outreach activities are also occasionally carried out, and a live all-sky camera is also maintained. The main detector is a commercial CCD camera hosting an UBVRI filter wheel. The photometric transformation coefficients, zero points and average extinction values of the observatory have been accurately determined by imaging standard stars under clear observing conditions during 2015-2016. Despite its location in a light polluted area, the instrument has performed remarkably well and differential photometry at the 0.01-0.02 mag accuracy level is regularly achieved for bright targets ($V \leq 12$). Several gamma-ray binaries and related systems (LS I +61303, LS 5039, MWC656, ...) are currently under monitoring. In the past year, the UJA observatory contributed to the optical follow-up of the black hole transient V404 Cygni in outburst. More recently, these UJA facilities have been key at identifying the Be star system LS I +59 79 as an eclipsing Be star inside the error ellipse of the unassociated gamma-ray source 3FGL J0133.3+5930.

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