



A Year with the DEdicated MONitor of EXotransits and Transients (DEMONEXT), an Automated and Robotic Telescope for Exoplanet and Transient Follow Up

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Tuesday

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12:30 P.M.

Rm 184 NSH

DEMONEXT is a 0.5-m robotic telescope that has been in operation since May 2016. Fully automated, DEMONEXT has observed over 200 transits of exoplanet candidates for the KELT survey, including confirmation observations of KELT-20b. DEMONEXT achieves 2-4 mmag precision with unbinned, 20-120 second exposures, on targets orbiting $V < 13$ host stars. Millimagnitude precision can be achieved by binning the transits on 5-6 minute timescales. During observations of 8 hours with hundreds of consecutive exposures, DEMONEXT maintains sub-pixel (< 0.5 pixels) target position stability on the CCD during good observing conditions, with degraded performance during poor observing conditions (< 1 pixel). DEMONEXT achieves 1% photometry on targets with $V < 17$ in 5 minute exposures, with detection limits of $V \sim 21$. In addition to the 150 transits observed by DEMONEXT, 50 supernovae and transients have been observed for the ASAS-SN supernovae group, as well as time-series observations of Galactic microlensing, active galactic nuclei, stellar variability, and stellar rotation.