

## **" DuOCam: A Two-Channel Camera for Simultaneous Photometric Observations of Stellar Clusters"**

Emily M. Witt, Erin R. Maier, D. L. DePoy , L. M. Schmidt

We have designed the Dual Observation Camera (DuOCam), which uses commercial, off-the-shelf optics to perform simultaneous photometric observations of astronomical objects at red and blue wavelengths. Collected light enters DuOCam's optical assembly, where it is collimated by a negative doublet lens. It is then separated by a 45 degree blue dichroic filter (transmission bandpass: 530 - 800 nm, reflection bandpass: 400 - 475 nm). Finally, the separated light is focused by two identical positive doublet lenses onto two independent charge-coupled devices (CCDs), the SBIG ST-8300M and the SBIG STF-8300M. This optical assembly converts the observing telescope to an f/11 system, which balances maximum field of view with optimum focus. DuOCam was commissioned on the McDonald Observatory 0.9m, f/13.5 telescope from July 21st - 24th, 2016. Observations of three globular and three open stellar clusters were carried out. The resulting data were used to construct R vs. B-R color magnitude diagrams for a selection of the observed clusters. The diagrams display the characteristic evolutionary track for a stellar cluster, including the main sequence and main sequence turn-off.