

Mira variables are cool, red giants, pulsating slowly (>100 days), while having large fluctuations in brightness. We collected and compared spectra of several Mira variables, identifying TiO and ZrO bands, typical for their spectral class (late M/S). Studying this class of variable stars is definitely relevant, as they offer us a way to see the future evolution of stars similar to our own Sun.

New Intense Multiband Photometric Observations of the Hot Carbon Star V348 Sagittarii

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Abstract V348 Sgr is one of four hot carbon-rich and hydrogen-deficient stars. It is also the central star of a planetary nebula with a strong stellar wind, an infrared dust excess, and a circumstellar dust shell. Since July 2014, near daily multi-band photometric observations have been obtained at the Remote Observatory Atacama Desert (ROAD) close to San Pedro de Atacama, Chile. Strong variations of the brightness of V348 Sgr have been observed, ranging from magnitude 19 to 11.2 in V band. No clear periodicity is discernible in the data. The observed light curve shows much more variation and on a much shorter time scale than that of R CrB, the prototype hydrogen deficient, carbon- and helium-rich star. The star becomes markedly redder during extinction phases as a consequence of obscuring dust. The particular challenge in this case is to understand what triggers the production of dust.

Camera Characterization and First Observation after Upgrade of Feder Observatory

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Abstract We prepared the Paul P. Feder Observatory at the Minnesota State University Moorhead Regional Science Center to observe exoplanet transits after recent upgrades of the camera and control system. We characterized the camera by measuring linearity, gain, read noise, and dark current. We also discuss how we minimize tracking error without a guide camera. We observed a transit of the exoplanet Kelt 16b, the first exoplanet transit observed with the new system. The goal is to observe exoplanet candidates identified by the Transiting Exoplanet Survey Satellite (TESS).

Bright Star Monitor Network

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Abstract The AAVSO Bright Star Monitor telescopes are a subset of the larger AAVSONet network located at sites around the world. Each site is equipped with a small telescope, a high grade astronomical camera, and standard photometric filters. They are operated robotically, and are locally supported by AAVSO member volunteers. Each telescope is capable of performing precise CCD photometric measurements on the sky's relatively bright stars, those in the range of 3.0 to 13.0 V magnitudes. It is available free to all AAVSO members.

Solar System Objects and the AAVSO Photometric All-Sky Survey (APASS)

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Abstract The AAVSO Photometric All-Sky Survey, data release 10 (APASS DR10) can be used for photometric calibration of observations of moving objects. Because APASS provides calibrated photometry over the whole sky, it makes it much simpler to tie together observations of objects, like asteroids and comets, that move appreciable distances over the time they are observed. Because the photometric standards are in each image, it will also be possible to recover photometry at the few percent level from non-photometric nights. In addition to providing calibration for new observations, the original APASS data comprise over 500,000 images, each 7.8 square degrees in size, taken over the course of more than nine years. We have searched those images for known Solar System bodies, and present the initial results of this search. For many of the objects found, we have simultaneous five color (B, V, g', r', and i') photometry. APASS provides photometric standards in at least five colors over the magnitude range 7 to 17, which makes it a good match for calibration for telescopes ranging from a few inches in size up to several meters.