

1979 to February 1980. Stars were observed to obtain the extinction coefficients and the transformation equations to the standard U-BV system and their results are presented.

A SURFACE PHOTOMETRY OF NGC 4258

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Surface brightness profiles of nearby galaxy NGC 4258(M 106) are obtained at V and B wavelengths. The eastwest profiles appear to be slightly asymmetric, especially in color V. Central part of the galaxy is slightly blue than the outer part, while the opposite trend is common for most galaxies. Its implications will be discussed.

SIUMLTANEOUS OBSERVATIONS OF HIGH RESOLUTION SPECTRA OVER A SUNSPOT UMBRA

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Simultaneous observations of high resolution spectra of Ca II H, K, $\lambda 8542$ and $\lambda 8498$ have been made over a sunspot umbra(SPO 5007) by means of SPO's HIRKHAD program with the Echelle spectrograph at the vacuum solar tower telescope. The observed spectra have been scanned by SPO's fast microphotometer and reduced for theoretical interpretations. The reduced profiles were sampled over a specific region, which is thought to be coolest over the spot. Theoretical interpretations of these spectra based on the non-LTE line formation theory will be presented.

MOLECULAR FORMATION IN SUNSPOTS

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An extensive investigation has been made on molecular formations under sunspot and the photospheric conditions by calculating equilibrium molecular number densities as a function of optical depth in selected models of umbra, penumbra and the photosphere.