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Abstracts of Papers Presented at the 107th Meeting of the American Astronomical Society, December 29–31, 1960 at the Hotel Roosevelt, New York City

Spectrophotometry of Gaseous Nebulae in the Magellanic Clouds. L. H. ALLER, senior postdoctoral fellow at the *Australian National University*, on leave from the University of Michigan; AND D. J. FAULKNER, *Mount Stromlo Observatory, Australian National Observatory*.—With a photoelectric spectrum scanner attached to the 50- and 74-inch reflectors at Mt. Stromlo and the 26-inch reflector at the Mt. Bingar Field Station we have obtained spectral scans of ten objects in the Small Magellanic Cloud (SMC) and 33 objects in the Large Magellanic Cloud (LMC) selected from Henize's list of emission nebulosities. These diffuse nebulae show a fair range in excitation. A substantial difference in excitation may exist between two nebulous patches lying side by side. Object No. 144 in Henize's catalogue appears to have the highest excitation of any object in the LMC, being comparable with a typical planetary rather than a diffuse nebula. Special attention has been paid to 30 Doradus in the LMC and to NGC 346 in the SMC. Although the $HeI\ \lambda 4471\text{ \AA}$ to $H\gamma\ \lambda 4340\text{ \AA}$ intensity ratio may be slightly smaller in NGC 346 than in 30 Doradus, the He/H ratios in the two clouds are probably comparable.

The general appearance of the spectra of diffuse nebulae in the galaxy, the LMC, the SMC, and in M33 seems to be about the same, suggesting that nebular excitation patterns and probably chemical compositions also are similar in these members of the local group of galaxies.

A Program of Stellar Photometry at 3 to 4 Microns. PHILIP E. BARNHART, WALTER E. MITCHELL, JR., AND RONALD E. ROLL, *Perkins Observatory, Delaware, Ohio*; AND WILLIAM H. HAYNIE, *Eastman Kodak Company, Rochester, New York*.—Observations of stellar radiation in the spectral region 3.2 to 4.2 μ are being made using the Perkins Observatory 69-inch reflector equipped with

an infrared photometer designed and constructed by the Apparatus and Optical Division of the Eastman Kodak Company.

The present pilot-model photometer is equipped with detector and interference filter combinations to allow observation of the spectral regions 2.0 to 2.4 μ (*n*-type lead sulfide) and 3.2 to 4.2 μ (*p*-type lead sulfide). The latter region is centered in the 3 to 4 μ atmospheric window. Calibrations are made by direct comparison with a blackbody source.

Preliminary results in the 2.0 to 2.4 μ region compare favorably with previously published observations and with blackbody calculations. There seems to be a tendency for later-type stars to show a higher PbS index than indicated by blackbody calculations for their temperatures.

Infrared magnitudes are given for 15 stars from deflections obtained in the 3 to 4 μ region using nitrogen-cooled plumbide cells.

A second photometer is being designed to include in addition to detectors for the two spectral regions mentioned a helium-cooled, copper-doped germanium detector for the purpose of measuring stellar radiation in the 8 to 14 μ atmospheric window.

Measurement of Microwave Radiation at 3.345 cm from the Planetary Nebula NGC 6543. A. H. BARRETT, W. E. HOWARD III, AND F. T. HADDOCK, *The Observatory*, M. E. BAIR, J. J. COOK, AND L. G. CROSS, *Institute of Science and Technology, University of Michigan, Ann Arbor, Michigan*.—Microwave radiation from the planetary nebula NGC 6543 has been detected using the University of Michigan 85-foot radio telescope and a ruby maser operating at 8700 Mc (3.45 cm wavelength). Observations taken on the nights of March 28–29, 1960, and May 18–19, 1960, give an antenna temperature of $0.034 \pm 0.013\text{ }^{\circ}\text{K}$ corresponding to a flux density of $4.0 \times 10^{-27}\text{ w m}^{-2}\text{ (c/s)}^{-1}$ with an internal con-