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SPECTROPHOTOMETRIC OBSERVATIONS OF SUPERNOVA 1985G IN NGC 4451

We present observations of the Supernova 1985G in NGC 4451, a member of the Virgo Cluster. The spectra shown in Figures 1 and 2 were obtained on 1985 April 13.2 and May 27.2 with the Mark II intensified Reticon spectrometer attached to the 1.3m telescope at McGraw-Hill Observatory. Both spectra were obtained within 30° of the zenith, the later one under photometric conditions. Standard stars were observed over a much larger range of airmass and were combined to create mean adopted flux calibrations for each of the two dates of observation. Relative to these means, the flux standards exhibit a scatter of ± 0.11 mag and ± 0.02 mag at 5556\AA for the respective April and May observations and show no significant wavelength dependent residuals. These spectra have been smoothed for illustration purposes using a Gaussian filter of FWHM equal to that of lines in the wavelength calibration lamp spectra. No redshift correction has been made, but tick marks have been added to the spectra to indicate the wavelengths of various spectral features in the rest frame of NGC 4451.

To facilitate comparison with models and other observations, we have determined the monochromatic magnitude at 5556\AA as well as broadband B and B-V by convolving the B and V filter functions with the spectra. These data and various observational details are presented in Table I. Compared with the April 13 observation, the May 27 spectrum shows the development of many strong features in the $5300 - 6200\text{\AA}$ spectral region and a narrowing of the H α emission component. Expansion velocities have been determined by measuring the wavelength of the blue absorption edge of H α ; this gives 12,000 km/s with an uncertainty of $\sim \pm 300$ km/s for both of our observations. This is smaller than the 13,000 km/s velocity measured by Chalabaev, *et al.* (IAU Circ. 4052) from a spectrum obtained on April 10.

In IAU Circular No. 4049, H. Kozai reported $V \sim 14.5$ on March 21 followed by a decrease to $V \sim 15.0$ by March 25. Our observations give $V = 15.18$ on April 13 and indicate an essentially constant B magnitude and slight increase in B-V over the following 44 days

SN 1985G, APR 13.2

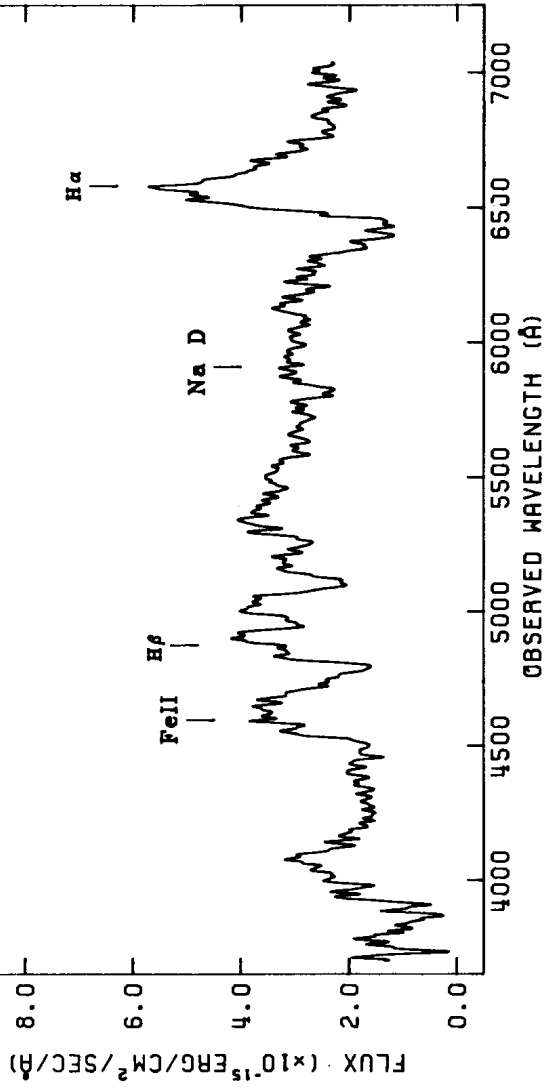


FIGURE 1.

SN 1985G, MAY 27.2

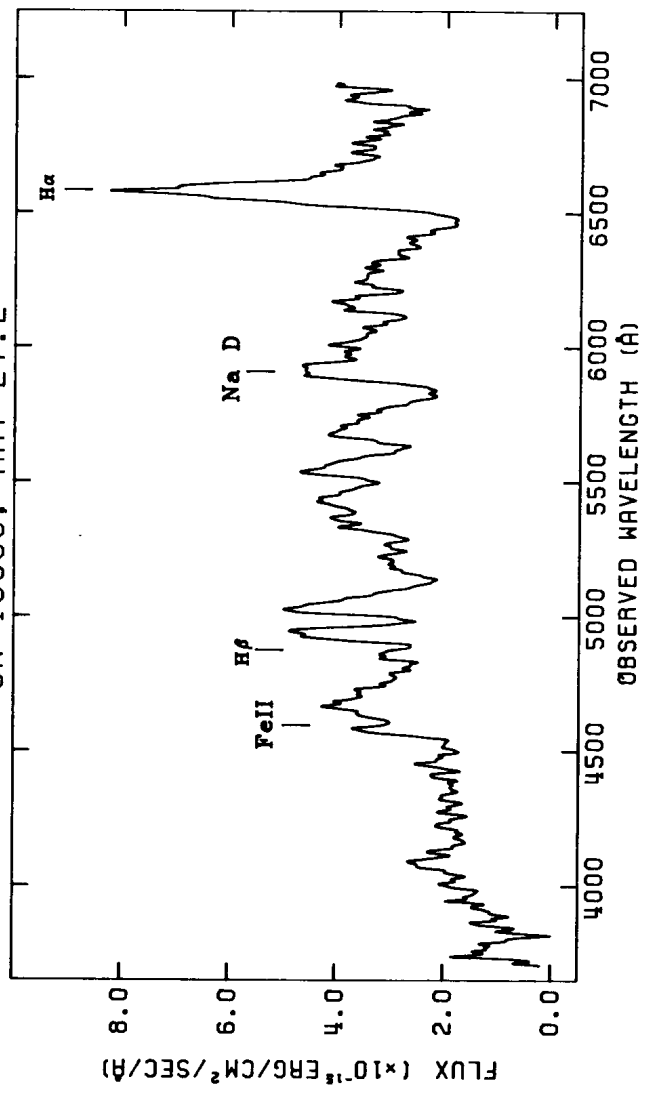


FIGURE 2.

TABLE I

Details of the Observations.

	Fig. 1	Fig. 2
1985 Date (UT)	April 13.2	May 27.2
Integration time on Object (sec)	1200	960
Instrumental Resolution (\AA)	9	9
Monochromatic m_v at 5556\AA	15.12	14.81
B mag	16.05	16.03
B-V	0.87	0.96

This is consistent with the object being a Type II supernova with a plateau of somewhat long duration in the light curve.

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