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SPECTROPHOTOMETRY OF SUPERNOVA 1985H IN NGC 3359

A spectrum of the supernova 1985H was obtained on April 13, 1985 at McGraw-Hill Observatory. This supernova was discovered in NGC 3359, an SBc spiral in Ursa Major, by J. Nemec and S. Staples on April 3, 1985 (Kristian 1985). Our observation was made with the Mark II intensified Reticon spectrometer attached to the 1.3 meter telescope. A 300 line/mm grating was used, giving a dispersion of 2.3 Å/channel and a spectral resolution of about 9 Å. The total exposure time on the supernova was 39.2 minutes, and mid-exposure was at 4:23 UT. The spectral scans were reduced in the standard fashion, with wavelength calibration being accomplished using scans of comparison lamps, and absolute flux calibration being achieved using observations of two spectrophotometric standard stars (EG 71 and Ross 640). Measurements indicate that our flux calibration is accurate to better than ±20% over the entire useful range of the spectrum. A fully reduced spectrum is shown in Figure 1. It has been smoothed with a Gaussian profile whose width equals the FWHM of the comparison lamp lines. No redshift corrections have been applied.

The spectrum in Figure 1 is typical for a Type II supernova, showing strong P Cygni lines of Hα, Hβ, Na I D, plus a number of unidentified features. The tick marks indicating the various spectral features are located at the rest wavelengths of these lines in the rest frame of the galaxy (V_r = 1013 km/s (Huchra *et al.* 1983)). It is interesting to note the strong similarity between the spectrum presented here and the May 27 observation of supernova 1985G in NGC 4451 reported in the preceding IBVS note. If these spectra represent similar stages in the evolution of the two supernovae, then supernova 1985H must be between one and two months "older" than 1985G, but escaped detection until it was well past its maximum.

The expansion velocity of the supernova, measured from the blue edge of the Hα absorption feature, is 6200 km/s. The V magnitude and B−V color have been determined by convolving the appropriate filter functions with the observed spectrum. We find V = 17.0 and B−V = 1.5. Wheeler (1985) reported V = 16.4 for this object from an observation made on April 12. The difference of 0.6 magnitude cannot be accounted for by the ±0.2 magnitude uncertainty in our value for V indicated by the accuracy of our flux calibration.

The very red color of 1985H indicates that a substantial amount of absorption occurs in the vicinity of the supernova. Using the average light curves of Barbon *et al.* (1979), we

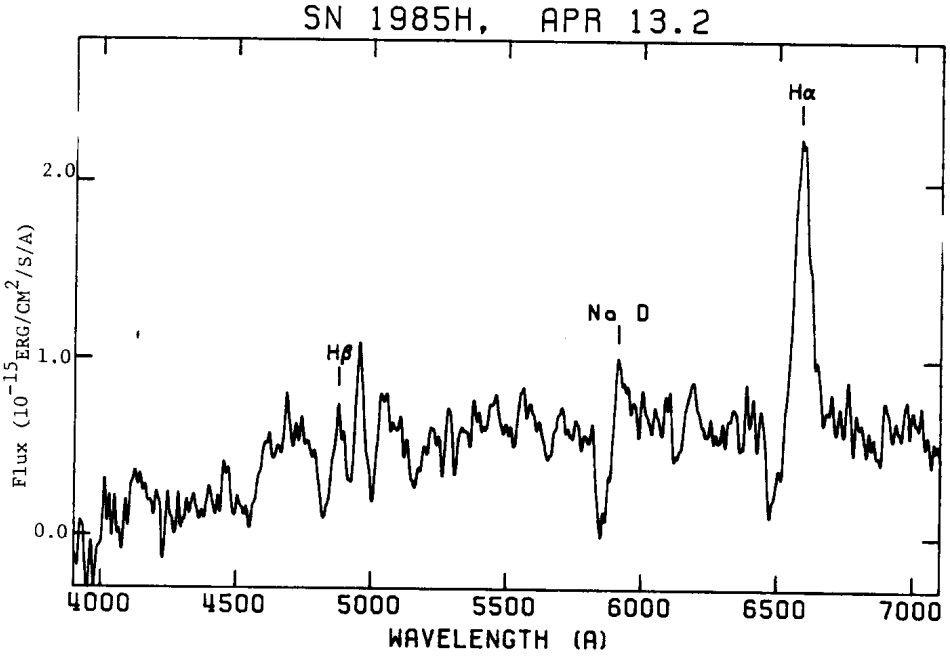

FIGURE 1

estimate that E(B−V) is between 0.5 and 0.6 magnitudes. The large amount of obscuration implied by this value for the color excess helps to explain the faintness of the supernova, and why it was not detected at an earlier stage.

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References:

Barbon, R., Ciatti, F., and Rosino, L. 1979, *Astron. Astrophys.* **72**, 287.
Huchra, J., Davis, M., Latham, D., and Tonry, J. 1983, *Ap. J. Supp.* **52**, 89.
Kristian, J. 1985, *I. A. U. Circ.* No. 4050.
Wheeler, J. C. 1985, *I. A. U. Circ.* No. 4053.