Detection of the Diffuse IS Band at λ 5780 Å in the Large Magellanic Cloud

The band at λ 5780 Å is one of the 39 diffuse IS absorptions in the region λλ 4400-6850 Å which are generally correlated with the colour excess E(B-V) (Herbig, Astrophysical Journal, 196, 129, 1975), and whose origin is still unknown. G. Vladilo (Osservatorio Astronomico di Trieste, Italy) took an exposure of 1^h15^m of SN 1987A in the spectral range around λ 5780 Å, with the CAT+CES+Reticon and a resolving power of 100,000. In Figure 1 one can see an expanded detail of the resulting calibrated spectrum. It is clear that two features have been detected: one close to the rest wavelength, which is interpreted of galactic origin, and the other displaced by a radial velocity of +261 km/s, i.e., in good agreement with neutral gas components previously detected in the LMC (de Boer, Fitzpatrick, and Savage, M.N.R.A.S., 217, 126, 1985). This is the first extragalactic de-



Figure 1: The 5780 Å feature, as observed in the spectrum of supernova 1987A. Note that the ordinate interval is less than 4% of the continuum intensity.

tection of the λ 5780 Å band. The central depths of the galactic and LMC components, once normalized to the continuum, are 0.023 and 0.018 respectively, that is about one order of magnitude weaker than the typical values found by Herbig (1975) in his survey of galactic lines of sight. *G. Vladilo (Trieste)*



-0.80206-0.33278-0.063510.2057510.4750220.744293Visible photometry and infrared CVF scans. Data were collected on the night betweenFebruary 28 and March 1, 1987, with the standard photometer attached at the ESO 50-cm inthe broad Johnson bands UBVRI, and with the INSB detector at the 1-m telescope for theinfrared, at La Silla. IR data have been collected by P. Bouchet and R. Stanga. The continuousline is the fit of a black body with a temperature T = 5900 K. Vertical axis: Log (flux density

(ergs cm⁻² s⁻¹ μ m⁻¹)). Horizontal axis: Log (λ μ m).

Fast Photometry of 1987 A

Fast photometry of the SN 1987 A has been carried out with the 1-m and the GMS 0.28-m telescopes at La Silla.

The 1-m telescope was equipped with the multi-channel photometer of the Universitäts-Sternwarte München. UBVRI data were obtained, observing sky and comparison star in two channels simultaneously with the object. Two photometric data sequences were obtained with time resolution of 0.5 sec and 40 millisec respectively. Figure 1 shows a condensed version of the data plotted in bins of 8 seconds. The U-B decrease is due to the U fading of the supernova. B-V and V-R are almost constant during the night. The irregular variability in V-I is due to the I band and is probably caused by fluctuations of the comparison star. A preliminary analysis does not reveal significant periodic or non-periodic variations on short timescales. The 3 sigma level for the detection of periodic variations was 0.0004 relative amplitude.

The system at the GMS telescope is normally used for monitoring gammaray bursters and has been described by Bouchet and Gutierrez (*Messenger*, **45**, 32). Thanks to the frantic work of J. Alonso and F. Gutierrez, it was possible to adapt it for monitoring the SN 1987 A on every clear night since the discovery, with a time resolution of 10 millisec and 1 millisec in the Johnson V band and in white light. It has not been possible to detect any periodical fluctuation in the frequency interval between 0.0003 and



Figure 1: Condensed UBVRI (Kron-Cousins) light curves of the SN 1987 A, obtained on February 28. Each dot corresponds to an integration time of 8 seconds.

The Temperature of 1987 A



These two colour photos of the Large Magellanic Cloud show the sudden appearance of the bright supernova 1987A. They were obtained with a 6×6 Hasselblad camera mounted piggy-back on the GPO and Danish 1.5-m telescopes, respectively. The left-hand photo was taken on February 23, between 01 : 00 and 01 : 20 UT and is the last colour picture taken before the supernova exploded, probably a few hours later. The



flecting the importance of this supernova, the Central Bureau for Astronomical Telegrams issued no less than 15 IAU Circulars in the course of 9 days only, breaking all records in the history of astronomy. At ESO, these circulars were read through a computer link to the Headquarters in Garching as soon as they were issued, and immediately sent on to the observers at La Silla by telefax. In this way, and also by numerous telex messages and phone calls, the scien-500000 tists were kept informed about what was going on in other places.

500 Hz. In Figure 2 a portion of the Fourier transform of the GMS data is shown. Calibration of the system is in Progress and the monitoring of the SN 1987 A will continue until it becomes too faint for this telescope.

H. Barwig, R. Schoembs (München) S. Cristiani, C. Gouiffes, J. L. Sauvageot (ESO)

Chronology of a Once-in-a-Lifetime Event

Only 48 hours separate the two photos above, but during this brief interval an event happened that excited an entire generation of astronomers. ReThe time immediately following the discovery was particularly hectic. Here is a provisional compilation of the main events during the first hours, drawn from the information available on March 4:

UT

Feb.

22.4 Photos obtained with the University of Aston satellite tracking