



Figure 2: Spectrum of SN 1957d. Wavelength identifies features discussed in the text, since the redshift of M83 is only 500 km s^{-1} .

dent, as is a feature (not shown here) at 7320 \AA presumably due to the [OII] $\lambda\lambda 7319,30$ doublet. There is some weaker evidence that a feature corresponding to a blend of $\text{H}\alpha + [\text{NII}] \lambda\lambda 6548,83$ has a broad component, although this is obscured by the imprecise subtraction of the overlying spectrum of narrow line HII regions in the vicinity of the object. There is also weak evidence for the presence of a line of MgI $\lambda 4571$. Other possible lines may be present and will be the subject of a more detailed analysis.

In a qualitative way the spectrum is similar to that of Cas A (320 years) and N 132 D in the LMC ($\sim 1500\text{--}2000$ years) although the relative line strengths are different for the various remnants. Since we have not detected [OIII] $\lambda 4363$ we are unable to establish an indicative temperature for the [OIII] line emitting region. Thus at present we can only arrive at some lower limit for the mass of O^{++} . Nevertheless our measured flux of [OIII] $\lambda\lambda 4959, 5007 \sim 2 \times 10^{-15} \text{ ergs cm}^{-2} \text{ s}^{-1}$, converted to an absolute flux for a distance of M83 =

3.7 Mpc , is not so different from that of Cas A, when account is taken of the uncertainties in reddening and distance.

More information is available by virtue of the high S/N in the [OIII] $\lambda\lambda 4959, 5007$ line. The width (FWHM) of the [OIII] $\lambda 5007$ feature is $\sim 2700 \text{ km/sec}$. In addition, the red wing of this line extends to $\sim 4500 \text{ km/sec}$ beyond the zero velocity position ($+500 \text{ km s}^{-1}$) in the rest frame of M83. How this transforms into a determination of the real expansion velocity of the oxygen-rich material is complicated by the fact that the [OIII] lines are clearly asymmetric with a velocity of the maximum emission of approximately -650 km s^{-1} relative to the rest velocity. [O] $\lambda 6300$ also shows this effect, although possibly to a lesser degree.

It has been pointed out by Danziger, Bouchet, Gouiffes and Lucy (IAU Circ. 4746) that this asymmetry with a blue shift of the peak of the emission lines noted since September 1988 in the spectrum of SN 1987A is a characteristic created by the presence of dust filling the envelope or the line forming region. Other interpretations in the case of SN 1957d with the data currently available are possible if one concedes the possibility of large deviations from spherical symmetry. However, if dust is the cause, then a rather careful analysis of the possible, but not inevitable, effects of differential reddening will be necessary in order to ascertain to what extent relative line strengths are affected.

The ESO Exhibition Tours Europe

Following the successful presentation in The Hague (see *the Messenger* 55, p. 37), the ESO Exhibition moved on to Münster (F.R.Germany), where the opening took place at the Westfälische Museum für Naturkunde on April 20, 1989. More than 100 invited participants listened to brief, introductory talks in the Planetarium of this beautiful, modern museum and then continued on a guided tour through the exhibition. It will be on display until June 4, and since the number of visitors to the museum normally reaches a maximum during the month of May, it is expected that well over 15000 persons will make use of this opportunity to learn more about ESO and modern astronomy.

The ESO Information Service has recently concluded the planning for the next 12 months; in view of the many invitations, the exhibition photos will be

duplicated at the ESO photographic laboratories during the coming summer months. Upcoming stations now include Klagenfurt, Austria (June 23–August 27), Copenhagen, Denmark (October 31–January 3, 1990), Stuttgart, F.R. Germany (mid-November 1989–mid-February 1990) and CERN, Geneva, Switzerland (early March 1990–late May 1990). ESO material will also be shown in connection with various meetings and local activities, e.g. in Groningen (the Netherlands) on the occasion of the 375th anniversary of the Groningen University (first three weeks in June 1989); in Vienna (Austria) at the "World Tech Vienna" (June 18–22, 1989); in Montpellier (France) at the "Colloque Européen sur l'Astronomie et l'Espace" (September 20–23, 1989). Further exhibitions are being planned for 1990 in other cities, mostly in the member

states, but also in Austria and Portugal.

Moreover, it has been decided that ESO will have an information stand at the European Symposium of Hypersonics, which will take place at the European Patent Office in Munich, on July 13–14, 1989. This symposium, which is concerned with the solutions to known technological problems and also addresses social, economical and environmental aspects of hypersonics, will serve to promote contacts and cooperation between aeronautical/astronautical professionals and students in Europe. It is organized by the EUROAVIA association with domicile in Munich. This meeting offers a good opportunity for ESO to make itself and its wide spectrum of activities better known to specialists from academic institutions and industry, working in an important neighbouring high-technology field.