Fig. 3: *The shell star HR 5999 unveiled. An artist's impression. Courtesy Mrs. M. Moesman.*

derived. It is shown in Fig. 2 as an extension of the visual part of the law. Compared to the normal extinction law of interstellar matter, the behaviour of the UV circumstellar law is completely different. The 2200 Å bump is somewhat lower and shifted towards larger wavelengths Furthermore, at about 1800 Å it is very much lower, resembling that for the star σ Sco reported by Savage.

The Spectrum

A study was made of the red and blue spectral plates (12 Å/mm) of HR 5999 taken in May 1978. Many lines of H I, Ca I, Fe II and Ti II are present and are composed of a broad photospheric component and several blue-shifted shell components. There are, however, lines which are purely photospheric (e.g. Mg II λ 4481) whereas other lines have only shell components (Na I D). The H-alpha line is in emission and has variable double structure. This variation appears to be in antiphase with the brightness changes of the star. Low resolution IUE spectra, taken also in May 1978, show in the short wavelength range ($\lambda < 2000$ Å) the presence of emission lines of O I, C II, C IV and probably Al II; in the long wavelength range (2000 Å $< \lambda <$ 3000 Å) there are indications of strong and broad absorption features. A steep drop-off of the continuum at about 1800 Å is in agreement with the spectral type A7 derived earlier from the red and blue plates. High resolution IUE spectra of the long wavelength region, taken more recently by Hack and Selvelli, reveal the presence of many shell lines from multiplets of Fe II, Cr II and Mn II in absorption and strong emission of the Mg II λ 2800 doublet with a double structure, comparable with that of H-alpha.

The radial velocities of the shell components on the blue and red plates vary in time between –40 and –5 km/s, more or less in phase with the variation of the dust extinction. Because of the large width of photospheric lines their radial velocites are more difficult to determine. The values vary between –20 and +20 km/s.

Although many details of the spectra are still being studied, the spectral data support our believe in the existence of a hot emission shell (C IV emission line) around the star, surrounded by a cooler, less dense shell region, where the shell absorption components are formed and in which the circumstellar dust is embedded. If this is true, one can imagine that the dust extinction and polarization variations are the result of changes in the character of the dust grains due to perturbations in the photosperic or hot shell region, which are propagated outward supersonically through the cooler dusty surroundings. The cause and the characteristics of the perturbations are not yet clear, but the existence of instabilities in the shell of HR 5999 can be expected in view of the evolutionary stage of this pre-main-sequence star.

A Supernova Discovered at La Silla

Dr. André B. Muller from ESO recently described (*The Messenger* No. 19, p. 29, 1979) a new system allowing an easy and efficient monitoring of galaxies for the detection of supernovae. Using this system, H.E. Schuster discovered a supernova in NGC 1255 on December 30, 1980 (*IAU Circular* No. 3559, 1981). At the time of discovery its magnitude was 17. This was the first supernova found on La Silla.

Thanks to the kind collaboration of Visiting Astronomers Dr. W. Seitter and Dr. H. Duerbeck, an immediate follow-up was carried out, showing that it was a type II supernova.

P. V.

ESO/ESA Workshop on "Optical Jets in Galaxies"

With the aim of encouraging European cooperation and coordination in the use of the Space Telescope within some fields of research, ESO and ESA have arranged a series of workshops on the use of the Space Telescope and coordinated ground-based observations. The second of these workshops, entitled "Optical Jets in Galaxies", took place in the auditorium of the new ESO Headquarters in Garching on February 18–19, 1981.

Thanks to active contributions from 50 participants from different institutions in Europe and the USA, the meeting was very successful. Optical, radio and ultraviolet observations of jets were discussed in great detail. One of the results of the meeting is that the Space Telescope is expected to play a key role in the study of jets because of high resolution and UV sensitivity. The workshop proceedings will be published in a short time by the ESA Press.

M. T.

ALGUNOS RESUMENES

Observaciones "Speckle" en infrarrojo realizadas con una cámara de televisión

En principio, los grandes telescopios, como el de 3.6 m de la ESO, tienen una resolución angular mejor que 0.1 segundo de arco, vale decir, que detalles asi de pequeños pueden ser vistos; pero comúnmente éste no es el caso. Las mejores fotografias tomadas con grandes telescopios pocas veces muestran detalles más pequeños que 1 segundo de arco (un segundo de arco es la separación angular de dos puntos separados por un milimetro a una distancia de 200 metros); ésto se debe a la presencia de la atmósfera que es turbulenta, y esta turbulencia produce una imágen borrosa del objeto.