
Shell of gas around supernova

D. H. Friday, April 10 1987

BANGALORE, April 9. (PTI) — An expanding disc or a shell of gas around the Supernova 1987A in the large magellanic cloud with a velocity of 650 Km per second has been detected by astronomers of the Indian Institute of Astrophysics here from their recent observations of the 'H' Alpha line.

This was in addition to the high velocity gas ejection seen earlier, Prof. N. Kameswara Rao, Supernova Programme Co-ordinator told PTI today.

The large magellanic cloud, the closest neighbour to our milky way galaxy is 1,75,000 light years away from us.

The Supernova 1987A is being monitored photometrically and spectroscopically from the Vainu Bappu Observatory, Kavalur, since February 26, barely two days after its discovery, Dr. Rao said.

For the first time since 1604, the spectacular phenomena of a star exploding (Supernova) relatively close to us has occurred, giving an opportunity to analyse and study how the chemical elements formed inside stars are thrown into the interstellar medium from which new stars are formed.

SPEED: He said the spectra helped in studying the physical characteristics of the gases ejected during the explosion and particularly the speed of the matter ejected was being estimated regularly.

The maximum speed of the ejecta was 25,000 km per second on February 26, he said and added that as

the matter expanded one could see deeper into it, helping to know characteristics of the inner layers.

The speed of the inner layers was seen to be much lower — only a few thousand km per second, Dr. Rao observed.

He said the size of the ejected envelope was 56 astronomical units (an astronomical unit is the distance of the sun from the earth) on February 26 and was expanding continuously, reaching a size of 168 astronomical units on March 22.

Pointing out that the envelope was

also getting cooler as it expanded, he said it had cooled from 10,000 to 5,000 degrees during the period.

The nature of the star which blew up was still a mystery and analyses was in progress to determine the quantities of various elements in the ejecta to learn not only the nature of the star which exploded, but also how much of the material was being thrown out, Dr. Rao said.

Supernova are the means of the mixing the elements produced inside stars into the interstellar medium from which new stars are formed.
