

## Vijay K. Kapahi – An obituary\*

The sad demise of Vijay Kapahi on 16 March 1999 at the age of 55 is a great loss to the radio astronomy community, particularly so because the Giant Metrewave Radio Telescope near Pune to which he made an essential contribution is about to become fully operational.

Vijay Kapahi was born on 21 January 1944 in Quetta. He was educated in Meerut, Madras and Bangalore. After his graduation from St. Joseph's College in Bangalore in 1962, he joined the Physics Course of the Training School of the Atomic Energy Establishment in Bombay. In August 1963 he joined the newly formed Radio Astronomy Group of the Tata Institute of Fundamental Research in Bombay. Within two years this group led by G. Swarup set up a 32-element grating interferometer in Kalyan (near Bombay) for solar studies. Subsequently Kapahi contributed to many major aspects of the design and development of the Ooty Radio Telescope (ORT). In particular, he was principally responsible for the development of the complex feed system of the ORT consisting of 968 dipoles with phase shifters operating at 327 MHz.

During the 1970s Vijay Kapahi used the ORT for studying the structure of a large number of radio sources exploiting the technique of Lunar Occultations. These observations yielded the brightness distribution of hundreds of weak radio sources with arcsecond resolution. His first major paper appeared in *Nature* (1971) in which he identified the second BL Lac object AP Lib (1514–24) based on the observations made at Ooty. His

studies provided strong evidence in favour of cosmological evolution of the average property of radio sources. In 1975 he showed, for the first time, that not only was the number density of powerful radio galaxies higher at earlier cosmic epochs, but that their linear sizes were considerably smaller. Later, he was able to convincingly demonstrate that the conclusion about the cosmic evolution was not affected by any inverse correlation between the linear size and radio luminosity.



In 1981 Kapahi identified a major class of radio sources – the *compact steep-spectrum sources*. In 1982, along with one of his colleagues, he made a pioneering statistical analysis of the flux in the compact cores of quasars with a view to unifying models of quasars on the basis of the relativistic beaming hypothesis.

During the past ten years he and his collaborators carried out an important *multi-wavelength* study of a complete sample of 558 radio sources with a flux

density above 1 Jy at 843 MHz selected from a 10° wide strip observed with the Molongolo Synthesis Radio Telescope. These extensive series of observations have provided a major source of information about the nature of radio galaxies and quasars at high redshifts, and will remain a lasting tribute to his scientific foresight.

Kapahi was an important member of the team responsible for setting up the Giant Metrewave Radio Telescope about 70 km north of Pune. He was closely associated with the selection of a suitable site, antenna design, surface measurement, array configuration and many other important aspects of the project. In 1994 he became the Director of the National Centre for Radio Astrophysics at Pune which integrates all the radio astronomy activities of TIFR. Among his many achievements in this phase was to successfully lead the team which made GMRT operational. It is a great pity that Kapahi did not live to see the fruits of this major endeavour.

Vijay Kapahi was not only a brilliant astronomer and an able administrator, he was also a committed teacher. Since 1997 he was the President of the Astronomical Society of India. The Indian astronomical community has been impoverished by his untimely death.

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