HIGHLIGHTS OF SYMPOSIUM ON VLBI

A symposium, sponsored by URSI, on Very-Long-Baseline Interferometry (VLBI) was held at Heidelberg, Federal Republic of Germany, between August 14-17, 1978. The Max Planck Institute for Radioastronomy, Bonn was the host (the previous ymposium on VLBI was held in 1974 at Pasadena). The following topics were covered : VLBI observations of (1) galactic and extragalactic radio sources, (2) masers in stars and H II regions, (3) terrestrial applications and astrometry from VLBI, (4) VLBI techniques and (5) image reconstruction from VLBI data.

Till recently, structures of radio sources obtained from VLBI data were essentially model dependent because of lack of information on phases of the Fourier components and only one or two baselines were used at a time. Closure phase technique is now being employed to map radio sources from multistation observations. This technique, which requires at least 3 baselines at a time, gives only relative phases of the Fourier components; hence it is not possible to obtain absolute positions of radio sources. But, more important, their structural details can be determined unambiguously.

A number of papers were presented on structure of compact nuclear components of extragalactic radio sources showing maps with resolutions going up to fraction of a milliarcsec. These components have typically head-tail structure with the tail having a steeper spectrum than the core. It was found by A. Readhead and P. Willkinson that in some cases (e.g. 3C 345, 3C 273 and 3C 120) the axes of these components are curved and rotate with frequency. J. Wittels showed that flux as well as structure of nuclear components vary considerably. Most of the variation takes place in the tail of the component, the core remaining more or less unchanged. A striking example is the source 3C 345. It showed up with as many as 5 components in its tail in April, 1978. The total spectrum of this source could be decomposed into 6 components with their maxima lying in the range of about 0.1 to 100 GHz.

M. Cohen discussed recent VLBI observations of superluminal sources. The earlier results, which were model-dependent for reasons mentioned above, had shown that a plot of separation against epoch was a smooth curve, and indicated that the two components were flying apart with velocities exceeding that of light. With the multistation observations using closure phase techniques that are now available, such a plot shows a scatter diagram! It was repeatedly stressed by Cohen that the earlier results should not be believed.

Y. Lo found from his multifrequency VLBI observations that the size of the compact component at the galactic centre varies as the square of the wavelength. Thus, the broadening is due to interstellar scattering. He estimated the intrinsic size of this component, which has a core-halo structure, to be less than 14 milliarcsec. D. Backer suggested that VLBI of compact objects could be used to probe the interstellar medium and study the intrinsic property of the turbulence. Be Geldzahler presented VLBI maps of compact objects in or very close to several super noval remanents . These objects have sizes of a fraction of a milliarcsec and their brightness temperature lies in the range of 10^9 to 10^{11} °K.

Several papers were presented on VLBI of OH, H_2O and SiO masers in H II regions, Mira variables and red giants. Much of this is now published. From simultaneous VLBI observations of OH and H_2O lines in W3(OH), J. Moran showed that they come from different regions of space separated by about 2×10^4 AU. He found clear evidence of Zeeman splitting in the OH spots in W3 (OH) which gave an average magnetic field of about 6 milligauss.

A. Niell discussed Project Aries. A dedicated network of VLBI stations together with transportable antennas will soon be established in the United States for Astrometry and Geodesey. An accuracy of 6 to 10 cm over several thousand kilometers in the determination of the vector baselines has already been demonstrated. I. Shapiro and D. Shaffer discussed astrometry of close pairs of sources which are simultaneously visible in the beams of the antennas. A relative positional accuracy of 0.0001 arcsec has been achieved.

M.N. Joshi

Radio Astronomy Centre
Tata Institute of fundamental Research
P.O. Box, 8, *Ootacamund* 643 001

REPORT ON THE IAU COLLOQUIUM ON SPECTRAL CLASSIFICATION OF THE FUTURE

The hundred years which followed the death in Rome of Father Angelo Secchi, S.J., one of the pioneers of modern astrophysics, have witnessed a remarkable growth in the science and arts of classifying spectra of stars and galaxies. A Colloquium to commemorate the Secchi Centennial was held in Vatican City from 11 to 15 July, 1978, and was devoted to the topic of the *Spectral Classification of the Future*. Sponsored by the International Astronomical Union through its Commissions 25 (Stellar Photometry and Polarization) and 45 (Spectral Classification and Multi-Colour Photometry), the Colloquium, No. 47, in the IAU Series, was hosted by the Vatican Observatory and by the Pontifical Academy of Sciences. The meetings were held in the New Synod Hall of the Sala Nervi. More than 20 nations were represented at the sessions.

Some 40 papers were presented in the eight scientific sessions of the Colloquium. The formal commemoration of the Secchi Centennial was made at two sessions: one was sponsored by the Pontifical Academy of Sciences in the Nervi Synod Hall after the Opening Session(on the morning of 11 July, 1978, with representatives of the Cardinal Secretary of State, of various scientific academies and religious and cultural organizations of Rome in