

FOREWORD

Ten years ago, on October 10, 1980, the formal opening of the Very Large Array was held. This was an auspicious event in the history of radio astronomy, as the VLA was by far the largest, most sensitive, and most flexible radio telescope ever built. And it retains all of these superlatives today.

The fact that the VLA could be built at all was due to a combination of factors, not the least of which was the technical maturity of the techniques of radio astronomy and of radio interferometry. The growth of radio astronomy has been meteoric, largely due to the rapid developments of radio technology combined with the scientific value of the radio portion of the electromagnetic spectrum. And within radio astronomy, the sub-discipline of radio interferometry has enjoyed spectacular growth as our ability to construct low-noise receivers, highly accurate antennas, and phase-stable links has improved. The VLA owes much to those pioneers who developed these techniques.

But a science unwilling or unable to use new technology is one which is doomed to stagnation. And fortunately, radio technology is far from stagnant. Better receivers, better antennas, better links, better techniques, and better computing are being developed constantly, allowing radio interferometry to continue to expand to higher (and lower) frequencies, larger arrays, more antennas, larger and better correlators. The list goes on and on.

Around the world, scientists and engineers are improving the tools and techniques of our trade. The VLA may still be the dominant single instrument, but other designs, incorporating the improvements listed above are under construction, or under consideration. And not only are new instruments being considered, but older ones, including the VLA, are being continuously improved.

IAU Colloquia are intended for specialists to exchange information in rapidly developing fields related to astronomy. The science and techniques of radio interferometry is such a field, and the tenth anniversary of the dedication of the VLA a suitable time to gather and discuss the present and future of radio interferometry. IAU Colloquium No. 131 was held at Socorro from 8 October to 12 October 1990. The meeting was sponsored by the IAU Commission 40, the International Union of Radio Science, the National Radio Astronomy Observatory, and the New Mexico Institute of Mining and Technology. More than 220 astronomers from 17 countries attended the meeting, reflecting the strong interest worldwide in radio interferometry. Travel support was provided by the IAU and by NRAO.

The Scientific Organizing Committee consisted of J.E. Baldwin, T.J. Cornwell (Chairperson), D. Downes, R.D. Ekers, M. Ishiguro, M. Matveyenko, R.T. Schilizzi, G. Swarup, Wang Shouguan, W.J. Welch, J.Y. Yen. The Local Organizing Committee consisted of J.O. Burns, T.J. Cornwell, P. Crane, N. Duric, T. Hankins, R. Havlen (Chairperson), R. Perley, T. Romero. The conference was divided into sessions on the Theory of Interferometry, Hardware for Interferometry, Space-based VLBI, Computing, History of Interferometry,

Imaging, VLBI Imaging, Applications to Other Fields, and Interferometric Telescopes. During the meeting, 15 invited papers, and 47 contributed papers were presented orally, and 40 poster papers were displayed. A brief conference summary was presented by R. Ekers, L. Matveyenko and P. Wilkinson. The presentation by Wilkinson on the proposed Hydrogen Array is included here as a full paper.

On Wednesday 10 October, a break from the conference was used for a celebration of the tenth anniversary of the dedication of the Very Large Array. Three of those most closely involved in the design of the VLA gave talks covering their view of the project development, concentrating upon the period before dedication. These three papers give fascinating insights into the genesis and growth of a large project.
