

Preface

Throughout astronomical history, five principal instrumental themes have played a decisive role in expanding our knowledge of the Universe: increased access to the electromagnetic spectrum, increased sensitivity, increased spectral resolution, increased time resolution, and increased angular resolution. This volume contains the papers presented at IAU Symposium 205: “Galaxies and Their Constituents at the Highest Angular Resolutions” which highlighted the contribution of the last of these five themes to our understanding of galaxies as the most prominent constituents of the Universe. It was held from 15 to 18 August 2000 at the Victoria University of Manchester, UK, during the XXIVth General Assembly of the International Astronomical Union. The location at the University of Manchester was particularly appropriate since it is home to the Jodrell Bank Observatory, the home station of the MERLIN array of radio telescopes and a pioneer in high angular resolution in both radio and optical astronomy.

Centimetre wavelength radio astronomy has long been the front-runner in high angular resolution in astronomy, with very long baseline interferometry in the vanguard. However angular resolution in other wavelength regimes is now sub-arcsecond or better with the advent of the Hubble Space Telescope, the optical interferometers at Cambridge, Flagstaff, and Narrabri and the IR interferometers under construction at the VLT and Keck sites, the millimeter arrays and their long baseline extensions planned or under construction on Plateau de Bure, Owens Valley, Hat Creek, and Nobeyama, the Sub-Millimetre Array on Mauna Kea, and the commissioning of the Chandra X-ray Observatory. Astronomers now have access to complementary sub-arcsecond data on a broad range of astronomical targets; this complementarity across the electromagnetic spectrum was the sub-theme of the Symposium. Contributions were made in six broad areas: the inner regions of galaxies, star formation and outflow processes in our Galaxy, supernova remnants and the interstellar medium, molecules in external galaxies, stars and stellar atmospheres, and prospects for new instrumentation for high angular resolution.

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