Foreword

I was honoured and delighted when David Buscher invited me to write an introduction to his new book. I have long felt that there is a desperate need for an authoritative and accessible book on the techniques of optical and infrared interferometry and David has filled this major gap in the literature with this excellent piece of technical and scientific writing.

For the radio astronomer, interferometry is the bread and butter of how much of the discipline has to be undertaken. Radio, and nowadays millimetre and submillimetre, astronomers are brought up with the concepts of amplitude and phase, Fourier inversion and so on, which has always been something of a barrier to the wider appreciation of these disciplines by optical astronomers, who until recently scarcely had to bother about phase at all. The understanding of aperture synthesis imaging in all its variants became a black-belt sport for the initiates and this discouraged the typical astronomer from taking the plunge.

But this is no longer reasonable or acceptable. The possibilities opened up by optical and infrared synthesis imaging are enormous, as David makes clear in this book. Angular resolution of a milliarcsecond or better can now be routinely provided by the most advanced optical-infrared interferometers and will undoubtedly result in important new discoveries and much improved tests of theories of Galactic and extragalactic objects.

This is where David's book comes in. He offers a rigorous, but accessible, introduction to the necessary theoretical and experimental tools needed to understand and apply the techniques of optical synthesis imaging. The result is that the effort needed to understand the key concepts by those new to the field, or who are still put off by the apparent complexity of the techniques, is made very much less forbidding. There is so much remarkable astrophysics lurking

below the 1 milliarcsecond threshold that it is only a question of time before optical-infrared interferometry becomes a standard tool of the trade. David's excellent exposition makes this feasible for all astronomers and I warmly recommend this book to all of them.

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October, 2014