

# Preface

Over the last decade, stellar interferometry has developed from a specialist tool to a mainstream observing technique. The user community has expanded well beyond the experts, attracting scientists whose research benefits from milliarcsecond angular resolution. As a result, the number of scientific publications has grown exponentially, showing the same trend as in radio interferometry some 30 years earlier.

Stellar interferometry has become part of the astronomer's toolbox, complementing single telescope observations by providing unique capabilities that will advance astronomical research.

While there is a large number of publications dealing with individual topics of interferometric observations and technical developments – all requiring a good level of understanding of the underlying physical principles – there is no text introducing these principles, deriving the relevant properties for interferometry and relating them to interferometric observations.

This book provides this information both for the astronomer using interferometry, but not being an interferometrist per se, and for the student starting in this field either to prepare astronomical research or to develop instruments. Rather than attempting to detail technical developments that are constantly evolving, the physical ideas behind the concept of interferometric observations are analysed, and the fundamental limitations are discussed. Numerical examples are given so that the basic performance of interferometers can be assessed.

Having spent the better part of the last 13 years with the Very Large Telescope Interferometer (VLTI), the material in this book is based on my experience with planning and developing this facility, and, thus, it is based on the work of the VLTI team. It is my pleasure to acknowledge this invaluable contribution. The kind support and the patience of the Springer-Verlag are also appreciated. In addition, I would like to thank Michael Dobers, Georg Junker and Gautam Vasisht for reading parts of the text, and Bruno Leibundgut for going through the whole manuscript, providing valuable advice.

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