



Optical Interferometry, 2e

By P. Hariharan

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When the first edition of *Optical Interferometry* was published, interferometry was regarded as a rather esoteric method of making measurements, largely confined to the laboratory. Today, however, besides its use in several fields of research, it has applications in fields as diverse as measurement of length and velocity, sensors for rotation, acceleration, vibration and electrical and magnetic fields, as well as in microscopy and nanotechnology.

Most topics are discussed first at a level accessible to anyone with a basic knowledge of physical optics, then a more detailed treatment of the topic is undertaken, and finally each topic is supplemented by a reference list of more than 1000 selected original publications in total.

- Historical development of interferometry
- The laser as a light source
- Two-beam interference
- Techniques for frequency stabilization
- Coherence
- Electronic phase measurements
- Multiple-beam interference
- Quantum effects in optical interference
- Extensive coverage of the applications of interferometry, such as measurements of length, optical testing, interference microscopy, interference spectroscopy, Fourier-transform spectroscopy, interferometric sensors, nonlinear interferometers, stellar interferometry, and studies of space-time and gravitation

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Editorial Review

Review

This book is of interest to students in physics and optics, and also as a research reference. It gives a concise and clear presentation of some recent developments in interferometry, although these are so numerous that complete descriptions are not possible in a book of reasonable size. The mathematical derivations are treated in the classical formalism and are thus easily accessible to most students.

--PHYSICS TODAY

...Harihan's book is a good study tool owing to its clear presentation of the basic principles underlying these beautiful new applications.

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About the Author

Professor P. Hariharan is a Research Fellow in the Division of Telecommunications and Industrial Physics of CSIRO in Sydney and a Visiting Professor at the University of Sydney. His main research interests are interferometry and holography. He is a Fellow of SPIE (The International Society for Optical Engineering), the Optical Society of America (OSA), the Institute of Physics, London, and the Royal Photographic Society. He was a vice-president and then the treasurer of the International Commission of Optics, as well as a director of SPIE. Honors he has received include OSA's Joseph Fraunhofer Award, the Henderson Medal of the Royal Photographic Society, the Thomas Young Medal of the Institute of Physics, London, SPIE's Dennis Gabor Award and, most recently, SPIE's highest award, the Gold Medal.

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