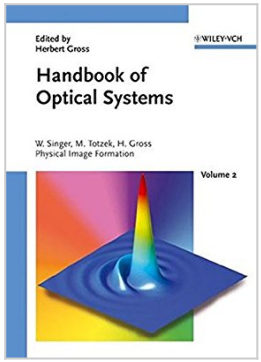

Handbook of Optical Systems, Physical Image Formation (Volume 2)

By Wolfgang Singer, Michael Totzeck, Herbert Gross

Handbook of Optical Systems, Physical Image Formation (Volume 2) By Wolfgang Singer, Michael Totzeck, Herbert Gross

The state-of-the-art full-colored handbook gives a comprehensive introduction to the principles and the practice of calculation, layout, and understanding of optical systems and lens design. Written by reputed industrial experts in the field, this text introduces the user to the basic properties of optical systems, aberration theory, classification and characterization of systems, advanced simulation models, measuring of system quality and manufacturing issues.

In this Volume

Volume 2 continues the introduction given in volume 1 with the more advanced texts about the foundations of image formation. Emphasis is placed on an intuitive while theoretically exact presentation. More than 400 color graphs and selected references on the end of each chapter support this undertaking.

From the contents:

17 Wave equation
18 Diffraction
19 Interference and coherence
20 Imaging
21 Imaging with partial coherence
22 Three dimensional imaging
23 Polarization
24 Polarization and optical imaging
A1 Mathematical appendix

Other Volumes

Volume 1: Fundamentals of Technical Optics
Volume 3: Aberration Theory and Correction of Optical Systems
Volume 4: Survey of Optical Instruments
Volume 5: Advanced Physical Optics

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Editorial Review

Review
"We simply have not seen any other reference on the market that touches upon these areas in such comprehensive terms." (*Electric Review*, September/October 2006)

"…a compendium of information that would be of interest to optical engineering, physicists and others." (*American Reference Books Annual*, 2006)

From the Back Cover
The state-of-the-art full-colored handbook gives in six volumes a comprehensive introduction to the principles and the practice of calculation, layout and understanding of optical systems and lens design. Written by reputed industrial experts in the field the user is introduced to the basic properties of optical systems, aberration theory, classification and characterization of systems, advanced simulation models, measuring of system quality and manufacturing issues. More than 3,000 full-colored illustrations and images support the reader and supply an easy understanding of complex optical systems and optical modeling.

Volume 1: Fundamentals of Technical Optics
Volume 2: Physical Image Formation
Volume 3: Aberration Theory and Correction of Optical Systems
Volume 4: Survey of Optical Instruments
Volume 5: Metrology of Optical Components and Systems
Volume 6: Advances Physical Optics

In this volume
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From the contents:

About the Author
Wolfgang Singer was born in 1964 and studied Physics at the University of Erlangen. He received his Ph.D. at the Institute of Applied Optics in 1995 with a thesis on microoptics, propagation theory and tomography. He spent his post doctorate at the Institute de Microtechnique in Neuchatel, where he developed diffractive

diffusors for DUV illumination systems. From 1996 to 1998, he was assistant at the Institute of Applied Optics at the University of Stuttgart. Since 1998, he has been with Carl Zeiss SMT AG, working in the department of optical design and simulation for lithographic optics. His work includes tolerancing of objectives and the design of illumination systems of EUV systems. He became principal scientist and was engaged at the scientific training programme at Carl Zeiss. His special interests are imaging theory and partial coherence, and he has written his own simulation software. He holds 50 patents and has published about 30 papers and contributions to textbooks.

Michael Totzeck was born in 1961. He received his diploma degree in Physics in 1987 and his Ph.D. in 1989, both from the Technical University of Berlin, where he also did his habilitation in 1995. In 1991 he was awarded the Carl-Ramsauer-Award of the AEG AG for his Ph.D thesis on near field diffraction. From 1995 to 2002, he headed a group on high resolution microscopy at the Institute of Applied Optics in Stuttgart, working by experimental, theoretical and numerical means on optical metrology at the resolution limit. He has been with the Carl Zeiss SMT AG since 2002, working in the department for optical design. His current research topic is electromagnetic imaging with high-NA optical systems. He has published 40 papers on diffraction theory, near-field optics, high-resolution microscopy, interferometry, metrology, optical singularities, polarization-optics and physics education.

Herbert Gross was born in 1955. He studied Physics at the University of Stuttgart and joined Carl Zeiss in 1982. Since then he has been working in the department of optical design. His special areas of interest are the development of simulation methods, optical design software and algorithms, the modelling of laser systems and simulation of problems in physical optics, and the tolerancing and the measurement of optical systems. Since 1995, he has been heading the central optical design department at Zeiss. He served as a lecturer at the University of Applied Sciences at Aalen and at the University of Lausanne, and gave seminars for the Photonics Net of Baden W?berg as well as several company internal courses. In 1995, he received his PhD at the University of Stuttgart on a work on the modelling of laser beam propagation in the partial coherent region. He has published several papers and has given many talks at conferences.

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