

# New Directions in Holography and Speckle



Holography and Speckle is intended to mark a new era in holography and speckle. A new generation of holographers and speckle users now appears ready to take these fields in new directions unanticipated even 5 years ago. The old familiar applications have now reached a level of maturity that makes them better suited for advanced development than for basic research. So what comes next? We have offered here a sampling of new directions with just enough tie-in to our past to put the new in perspective. This is not a book in which you will find reviews of past work by the usual suspects, whose contributions, however important, those in the field already know well. Here you will find chapters from many whose work has never appeared in such a book and who are looking at these fields with new perspectives. Holography and speckle are being reborn or at least rethought, and you are invited to join us in seeing some of those new directions for the first time. This book contains 26 state-of-the-art review chapters written by leading experts from around the world. CONTENTS (1) A Historian's View of Holography, Sean F. Johnston (2) Optical Singularities in Holography and Speckle Fields, Marat Soskin, Mikhail Vasnetsov, Vladimir Denisenko, and Vladimir Slyusar (3) Speckles and Phase Singularities in Polychromatic Fields, Oleg V. Angelsky, Peter V. Polyanskii, and Peter P. Maksimyak (4) Fast Transforms for Digital Holography, Leonid P. Yaroslavsky (5) A Fresnel Approach to Digital Holography, Michael Liebling (6) Where Are We Going in Art Holography? Setsuko Ishii and Jumpei Tsujiuchi (7) Holographics-Combining Holograms with Interactive Computer Graphics, Oliver Bimber (8) Holographic Spectral Filters, Wenhai Liu, Christophe Moser, Greg Steckman, and Demetri Psaltis (9) Holographic Optical Elements for Infrared

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