Record Nr. UNINA9910299676603321 Autore Schnars Ulf Titolo Digital Holography and Wavefront Sensing: Principles, Techniques and Applications / / by Ulf Schnars, Claas Falldorf, John Watson, Werner Jüptner Berlin, Heidelberg:,: Springer Berlin Heidelberg:,: Imprint: Springer, Pubbl/distr/stampa , 2015 **ISBN** 3-662-44693-6 Edizione [2nd ed. 2015.] Descrizione fisica 1 online resource (233 p.) Disciplina 006.37 006.6 620 621.3 Soggetti Microwaves Optical engineering Lasers **Photonics** Signal processing Image processing Speech processing systems Optical data processing Microwaves, RF and Optical Engineering Optics, Lasers, Photonics, Optical Devices Signal, Image and Speech Processing Image Processing and Computer Vision Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia Note generali Description based upon print version of record. Nota di bibliografia Includes bibliographical references and index. Nota di contenuto Introduction -- Fundamental Principles of Holography -- Digital Holography -- Digital Holographic Interferometry (DHI) -- Digital Holographic Particle Sizing and Microscopy -- Special Techniques --Computational Wave Field Sensing -- Speckle Metrology.

This book presents a self-contained treatment of the principles and major applications of digital hologram recording and numerical

Sommario/riassunto

reconstruction (Digital Holography). This second edition has been significantly revised and enlarged. The authors have extended the chapter on Digital Holographic Microscopy to incorporate new sections on particle sizing, particle image velocimetry and underwater holography. A new chapter now deals comprehensively and extensively with computational wave field sensing. These techniques represent a fascinating alternative to standard interferometry and Digital Holography. They enable wave field sensing without the requirement of a particular reference wave, thus allowing the use of low brilliance light sources and even liquid-crystal displays (LCD) for interferometric applications.