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Applications; 3.1 Historical Introduction; 3.2 The Foundation of Digital Holography [30]; 3.2.1 Theoretical Analysis of Wavefront Interference; 3.2.2 Digital Hologram Recording and Reconstruction; 3.2.3 Different Numerical Reconstruction Algorithms; 3.3 Digital Holographic Microscopy System  
 3.3.1 Digital Holographic Microscopy with Physical Spherical Phase Compensation  
 3.3.2 Lens-Less Common-Path Digital Holographic Microscope; 3.3.3 Common-Path Digital Holographic Microscope; 3.3.4 Digital Holographic Microscopy with Quasi-Physical Spherical Phase Compensation : Light with Long Coherence Length; 3.3.5 Digital Holographic Microscopy with Quasi-Physical Spherical Phase Compensation : Light with Short Coherence Length; 3.4 Conclusion; References; 4 Digital In-Line Holography and Applications; 4.1 Background; 4.2 Digital In-Line Holography; 4.2.1 Recording and Reconstruction  
 4.3 Methodology for 2D Measurement of Micro-Particles  
 4.3.1 Numerical Reconstruction, Pre-Processing and Background Correction; 4.3.2 Image Segmentation; 4.3.3 Particle Focusing; 4.3.4 Particle Size Measurement; 4.4 Validation and Performance of the 2D Measurement Method; 4.4.1 Verification of the Focusing Algorithm; 4.4.2 Spherical Beads on a Glass Slide; 4.4.3 Microspheres in a Flowing System Normalized Population; 4.4.4 10 m Microspheres Suspension; 4.4.5 Measurement of Microfibers; 4.5 Methodology for 3D Measurement of Micro-Fibers; 4.5.1 Method 1: The 3D Point Cloud Method  
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 5.1.2.1 Introduction

## Sommario/riassunto

Approaching the topic of digital holography from the practical perspective of industrial inspection, Digital Holography for MEMS and Microsystem Metrology describes the process of digital holography and its growing applications for MEMS characterization, residual stress measurement, design and evaluation, and device testing and inspection. Asundi also provides a thorough theoretical grounding that enables the reader to understand basic concepts and thus identify areas where this technique can be adopted. This combination of both practical and theoretical approach will ensure the