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Nota di bibliografia	Includes bibliographical references at the end of each chapters and index.
Nota di contenuto	1.Comprehensive Approach to Deformation Dynamics -- 2.In situ Modal Analysis of Gears -- 3.High-Speed Stereomicroscope Digital Image Correlation of Rupture Disc Behavior -- 4.An Experimental-numerical Hybrid Approach to Analysis of Fiber-matrix Interfacial Stresses -- 5.Stochastic Progressive Damage Process in Thick Composites: DIC-Based Experimental Characterization -- 6.DIC Strain Analysis of FRP/Concrete Bond after Sustained Loading -- 7.Damage Detection In CFRP Components Using DIC -- 8.Experimental Quantification of Bend-twist Coupling in Composite Shafts -- 9. Evolution of Speckle Photography: From Macro to Nano & from 2D to 3D -- 10.A Nonlocal Strain Measure for DIC -- 11.Highly Accurate 3D

Shape and Deformation Measurements Using Fluorescent Stereo Microscopy -- 12.Continuous 3d Scanning Mode Using Servomotors Instead Of Stepping Motors -- 13.Displacement Measurement by DIC Method With Cameras of Different Formats -- 14.Evaluating Thermal Stresses and Strains from Measured Displacements Using an Experimental-numerical Hybrid Method -- 15.Stress Analysis of a Perforated Asymmetrical Vehicle Cooling Module Structure From Unidirectional DIC Displacement Information -- 16.Thermo-mechanical Properties of Metals at Elevated Temperatures -- 17.Correlation of Microscale Deformations to Macroscopic Mechanical Behavior Using Incremental Digital Volume Correlation of In-situ Tomography -- 18. Sparse Spherical Marker Tracking in Volumetric Images: Assessment of Local Measurement Errors -- 19.Flapping Wing Deformation Measurement in Hover Flight Conditions -- 20.Characterization of Cover-plate Bolted Steel Joints With Full-field Measurements -- 21. Connecting Rod FEA Validation Using Digital Image Correlation -- 22. DIC on the Thermal Expansion Coefficient Measurements of Palladium at Different Temperature Levels -- 23.Keynote: Comparison of Subset-based Local and Finite Element-based Global Digital Image Correlation -- 24.A Meshless Global DIC Approach -- 25.Out-of-plane Motion Evaluation and Correction in 2D DIC -- 26.A Realistic Error Budget for Two Dimension Digital Image Correlation -- 27.Accuracy Comparison of Fringe Projection Technique and 3D Digital Image Correlation Technique -- 28.Continuous Development of 3D DIC by Using Multi Camera Approach -- 29.On Noise Prediction In Maps Obtained With Global DIC -- 30.Full-field 3D Deformation Measurement of Thin Metal Plates Subjected to Underwater Shock Loading -- 31.A Multi-Camera Stereo DIC System for Extracting Operating Mode Shapes of Large Scale Structures -- 32.Metrology of Contours by the Virtual Image Correlation Technique -- 33.Uncertainties of Digital Image Correlation Due to Pattern Degradation at Large Strain -- 34.Optimization Analysis of Large-area Full-field Thickness Measurement Interferometry in Thin Glass Plates -- 35.A New Approach to Calibration of Polycarbonate Material for Photoplastic Studies -- 36.Revealing Dynamic Banding During High Temperature Deformation of Lightweight Materials Using Digital Image Correlation -- 37.Strains in Shallow and Deep Notches Using Two DIC Algorithms -- 38.Towards the Development of a Global Cn-continuous DIC Procedure? -- 39.Extraction of Linear Anisotropic Parameters with Scattering Property by Mueller Optical Coherence Tomography for Stress Analysis -- 40.Field Strain Measurement on the Fiber-epoxy Scale in CFRPs.

Sommario/riassunto

Advancement of Optical Methods in Experimental Mechanics, Volume 3 of the Proceedings of the 2015SEM Annual Conference& Exposition on Experimental and Applied Mechanics, the third volume of nine from the Conference, brings together contributions to this important area of research and engineering. The collection presents early findings and case studies on a wide range of optical methods ranging from traditional photoelasticity and interferometry to more recent DIC and DVC techniques, and includes papers in the following general technical research areas: Advanced optical interferometry Developments in Image correlation (Digital &Volumetric) Full Field Methods Novel Optical Methods for Stress/Strain Analysis Advances in Optical Methods.