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Nota di contenuto	The Kinematics of Crystalline Arrays at the Subnanometric Level -- Comprehensive Theory of Deformation -- Topography of Rough Dielectric Surfaces Utilizing Evanescent Illumination -- Strain Assessment in Cracked Sheet Metals by Optical Grid Method -- A Preliminary Investigation on the Mechanical Behavior of Umbilical Cord With Moire Techniques -- Study on the Visco-hyperelastic Behavior of the Zona Pellucida -- Data Processing Techniques to Analyze Large 3-D Deformations of Cardiac Cycles -- Bi-directional Displacement Measurement by Speckle Interferometry Immune to Random Vibration -- A Speckle Interferometry Based System for the Measurement of Very Slow Motions -- Multiplexed Holography for Single-shot 3-

Dimensional Shape and Displacement Measurements -- Observation of Grain-size Effect in Serration of Aluminum Alloy -- Opto-acoustic Technique to Investigate Interface of Thin-film Systems -- Analysis of Fatigue of Metals by Electronic Speckle Pattern Interferometry -- Simultaneous Application of Acoustic and Optical Techniques to Nondestructive Evaluation -- Stress Analysis on Welded Specimen with Multiple Methods -- Sound Attenuation for Dogs Barking Using of Transfer Function Method -- On the Use of Regularized DVC to Analyze Strain Localization -- Determination of Surface Bi-Axial Stresses Using Raman Spectroscopy -- Visualization and Quantification of Quasi-Static and Dynamic Surface Slopes Using a Reflection-mode Digital Gradient Sensor -- Analysis of Linear Anisotropic Parameters by Using Hybrid Model in Mueller Optical Coherence Tomography -- Characterization of Time-dependent Mechanical Behaviors of Dental Composites By DIC -- Deformation Distribution Measurement From Oblique Direction Using Sampling Moire Method -- Automatic Stress Measurement by Integrating Photoelasticity and Spectrometry -- Observation of Fiber-matrix Interfacial Stresses Using Phase-stepping Photoelasticity -- Stabilizing Heteroscedastic Noise With the Generalized Anscombe Transform. Application to Accurate Prediction of the Resolution in Displacement and Strain Maps Obtained With the Grid Method -- Experimental Evaluation of the Warping Deformation in Thin-Walled Open Section Profiles -- In Situ Study of Plastic Flow at Sliding Metal Surfaces -- Stiffness Investigation of Synthetic Flapping Wings for Hovering Flight -- A Generic, Time-resolved, Integrated Digital Image Correlation, Identification Approach -- Multiscale FE-based DIC for Enhanced Measurements and Constitutive Parameter Identification -- Uncertainties of Digital Image Correlation Near Strain Localizations -- Pre-Qualifying DIC Performance Based on Image MTF Correlation Coefficient -- Analysis of e-beam Microlithography and SEM Imaging Distortions -- Displacement Measurements Using CAD-based Stereo-DIC -- Single-camera-based 3D DIC for Fast-speed Measurement -- Three-Dimensional Digital Image Correlation Using a Single Color-Camera -- Multi-Camera DIC offers new dimensions in Material Testing -- Using Sampling Moire to Extract Displacement Information from X-ray Images of Molten Salt Batteries -- High-speed Digital Holography for Transient Response of the Human Tympanic Membrane -- Displacement and Strain Measurement with Multiple Imaging Head Using PSDHI -- Simultaneous ESPI Measurements Using Multiple Wavelengths and a Color Camera -- Some Practical Considerations in High-speed 3D Shape and Deformation Measurement Using Single-shot Fringe Projection Technique -- Fast-speed, High-accuracy and Real-time 3D Imaging with Fringe Projection Technique -- DIC Strain Analysis of Pipeline Test Specimens Containing Metal Loss -- Experimental Inference of Inter-particle Forces in Granular Systems Using Digital Image Correlation -- High Pressure Burst Testing of SiCf-SiCm Composite Nuclear Fuel Cladding -- Low Cost Digital Image Correlation (DIC) for Monitoring Components Undergoing Fatigue Loading -- Tensile Response and the Associated Post-Yield Heating of Polycarbonate -- Passive 3D Face Reconstruction with 3D Digital Image Correlation -- On the Meso-macro Scale Deformation of low Carbon Steel -- Feasibility of Non-Contacting Measurement of Wind-induced Full-field Displacements on Asphalt Shingles.

Sommario/riassunto

Advancement of Optical Methods in Experimental Mechanics, Volume 3: Proceedings of the 2014 Annual Conference on Experimental and Applied Mechanics, the third volume of eight 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 methods for frontier applications · Advanced optical interferometry · Optical measurement systems using polarized light · Optical methods for advanced manufacturing · Digital image correlation · Optical methods at the micro/nano-scale · Three-dimensional imaging and volumetric correlation · Imaging methods for thermomechanics applications · Opto-acoustical methods in experimental mechanics · Optical measurements in challenging environments · Optical methods for inverse problems · Advances in optical methods

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