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Behavior -- Chapter14. Effect of DIC Parameters on VFM Stiffness Heterogeneity Identification -- Chapter15. Forming Limit Diagram Determination Using Digital Image Correlation: A Review -- Chapter16. High-accuracy and High-efficiency Compensation Method in Two-Dimensional Digital Image Correlation -- Chapter17. Theoretical and Numerical Analyses of Systematic Errors in Local Deformations -- Chapter18. Quality Assessment of Speckle Patterns by Estimating RMSE -- Chapter19. Statistical Error Analysis of the Inverse Compositional Gauss-Newton Algorithm in Digital Image Correlation -- Chapter20. DIC in Machining Environment, Constraints and Benefits -- Chapter21. Extracting High Frequency Operating Shapes from 3D DIC Measurements and Phased-based Motion Magnified Images -- Chapter22. 2D DIC-based Inverse Procedures for The plastic Identification of Sheet Metals in High Strain Rate Tests -- Chapter23. Direct Measurement of R Value for Aluminum Alloy Using Digital Image Correlation -- Chapter24. Failure Process of Fine Recycled Concrete Aggregate Mortars Based on Digital Image Correlation -- Chapter25. Identification of a 3D Anisotropic Yield Surface Using a Multi-DIC Setup -- Chapter26. Inertial Impact Method for the Through-Thickness Strength of Composites -- Chapter27. Assessing the Metrological Performance of DIC Applied on RGB Images -- Chapter28. Experimental Investigation of Compaction Wave Propagation in Cellular Polymers -- Chapter29. Full-scale Damage Detection of Railroad Crossties Using Digital Image Correlation -- Chapter30. Leveraging Vision for Structural Identification – A Digital Image Correlation Based Approach -- Chapter31. Uncertainty Quantification in the Evaluation of DIC-based Dynamic Fracture Parameters -- Chapter32. Behavior Investigation of CFRP-Steel Composite Members Using Digital Image Correlation -- Chapter33. Registration Inhomogeneous Deformation Fields in Technology Composite Defects with DIC -- Chapter34. Regularization Techniques for Finite Element DIC -- Chapter35. Micro Speckle Stamping: High Contrast, No Basecoat, Repeatable, Well-Adhered -- Chapter36. Determination of Fracture Loci for Anisotropic AA6063-T6 Extrusions -- Chapter37. DIC Analysis for Crack Closure Investigations During Fatigue Crack Growth Following Overloads -- Chapter38. On the Evaluation of Volume Deformation from Surface DIC Measurements -- Chapter39. DIC of Dual Thick-Wall Pressurized Pipe -- Chapter40. Digital Image Correlation for Large Strain -- Chapter41. Shock Response of Composite Materials Subjected to Aggressive Marine Environments -- Chapter42. Investigations on Cyclic Flexural Behavior of Fiber Reinforced Cementitious Composites Using Digital Image Correlation and Acoustic Emissions -- Chapter43. Method for Determining Temperature Dependence of Material Properties and Failures on the Meso-Scale -- Chapter44. Shock-Structure Interaction Using Background Oriented Schlieren and Digital Image Correlation -- Chapter45. Identification of Heterogeneous Elastoplastic Materials by Constitutive Equation Gap Method -- Chapter46. Metrological Analysis of the DIC Ultimate Error Regime -- Chapter47. Inverse identification of the High Strain Rate Properties of PMMA -- Chapter48. Quantification of the Compressibility of Elastomers Using DIC -- Chapter49. Inverse Identification of the Elasto-Plastic Response of Metals at High Strain Rates -- Chapter50. Viscoelastic Properties Identification Through Innovative Image-Based DMTA Strategy -- Chapter51. Experimental Study of Measurement Errors in 3D-DIC due to Out-of-Plane Specimen Rotation -- Chapter52. Investigation of Optimal Digital Image Correlation Patterns for Deformation Measurement -- Chapter53. Characterization of Elastic-Plastic Fracture Behavior in Thin Sheet Aluminum -- Chapter54. Full-field Structural Dynamics by Video

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Sommario/riassunto

This collection represents a single volume of technical papers presented at the Annual International DIC Society Conference and SEM Fall Conference organized by the Society for Experimental Mechanics and Sandia National Laboratories and held in Philadelphia, PA, November 7-10, 2016. The volume presents early findings from experimental, standards development and various other investigations concerning digital image correlation - an important area within Experimental Mechanics. The area of Digital Image Correlation has been an integral track within the SEM Annual Conference spearheaded by Professor Michael Sutton from the University of South Carolina. In 2016, the SEM and Sandia joined their collaborative strengths to launch a standing fall meeting focusing specifically on developments in the area of Digital Image Correlation. The contributed papers within this volume span numerous technical aspects of DIC including standards development for the industry. .