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Dynamic Behavior of Materials, Volume 1 of the Proceedings of the 2018 SEM Annual Conference & Exposition on Experimental and Applied Mechanics, the first 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 fundamental and applied aspects of Experimental Mechanics, including papers on: Synchrotron Applications/Advanced Dynamic Imaging Quantitative Visualization of Dynamic Events Novel Experimental Techniques Dynamic Behavior of Geomaterials Dynamic Failure & Fragmentation Dynamic Response of Low Impedance Materials Hybrid Experimental/Computational Studies Shock and Blast Loading Advances in Material Modeling Industrial Applications.