Preface


Each collection presents early findings from experimental and computational investigations on an important area within Experimental Mechanics. The Engineering Applications of Residual Stress conference track was organized by: Gary S. Schajer, University of British Columbia and Gavin Horn, University of Illinois at Urbana-Champaign.

The work presented in this volume reflects the practical importance of residual stresses in engineering systems and design. The hidden character of residual stresses often causes them to be underrated or overlooked. However, they profoundly influence structural design and substantially affect strength, fatigue life and dimensional stability. Since residual stresses are induced during almost all materials processing procedures, for example, welding/joining, casting, thermal conditioning and forming, they must be taken seriously and included in practical applications.

This volume highlights the wide range of research relating to residual stresses, including stress development, control, modeling, measurement, and physical responses of engineering components. These topics are organized into five major areas:

**Destructive (Relaxation) Residual Stress Measurements**
**Non-Destructive Residual Stress Measurements**
**Residual Stress and Reliability on the Micro- and Nano-scale**
**Industrial Residual Stress Measurements**
**Modeling and Experimental Validation of Residual Stresses**
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