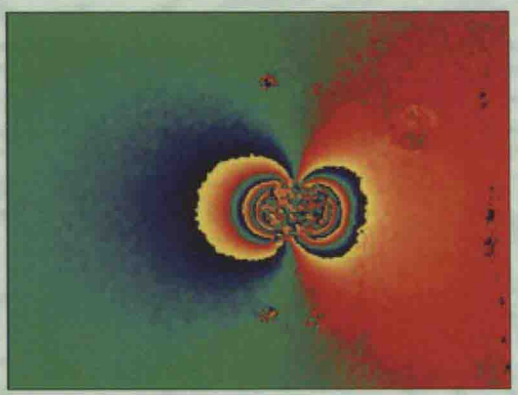
Residual Stresses IX



Edited by
M. François, G. Montay, B. Panicaud,
D. Retraint and E. Rouhaud

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Residual Stresses IX

Selected, peer reviewed papers from the
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Residual Stresses
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July 7-10, 2014, Troves, France

Edited by

**M. François, G. Montay, B. Panicaud,
D. Retraint and E. Rouhaud**

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Residual Stresses IX

Edited by
M. François
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Preface

Residual stresses are stresses that remain in materials and structures after manufacturing. They have a strong influence on the performances of technical components and on the properties of materials. For instance, they can shorten or improve the fatigue life of airplane engine parts, medical prosthesis, welds, electronic components, etc. They can also induce geometrical distortions, accelerate corrosion phenomena or influence many physical properties of materials (superconductivity, magnetism, mobility of charge carriers in electronic devices, phase transitions...). They appear at macroscopic scale, phase scale, grain scale and even at atomic scale, in metals, ceramics, polymers, glasses, semiconductors, composite or multilayered materials. They originate from any inelastic process occurring during the history of the material: plasticity, phase transformations, diffusion of chemical species, thermal expansion, deposition process, etc.

This rich variety and this complexity is probably one strong motivation for the periodic meetings of a lively international community, through the ICRS/ECRS (International/European Conferences on Residual Stresses) conferences. ECRS-9, held in Université de Technologie de Troyes (UTT) in France from July 7th to 10th 2014, is the 9th edition after Karlsruhe 1983, Darmstadt 1990, Frankfurt am Main 1992, Cluny 1996, Delft 1999, Coimbra 2002, Berlin 2006 and Riva del Garda 2010. Although it was initially meant to gather the European scientific community, colleagues from other continents are warmly welcome and, indeed, 1/3 of the abstracts received comes from Asia, Oceania, Africa, North and South America.

About 222 communications were programmed, 133 as oral presentations and 89 as poster presentations. It was proposed to the authors to publish a short article in the present special issue of Advanced Materials Research, published by Trans Tech Publications, and indexed in several international databases. A total of 165 articles were received and submitted to two international reviewers. The 157 accepted articles were online for the beginning of the conference. To ensure a large audience, it was chosen to produce a purely electronic version in Open Access. During the 4 days of the event, 15 companies working in the field of residual stresses were given an opportunity to present their products and services through a commercial exhibition.

The organizers, the **LASMIS** research group, are grateful to public and private sponsors who, through their financial support, helped significantly the organization of this event: Région Champagne-Ardenne, Conseil Général de l'Aube, Grand Troyes, Conseil National de la Recherche Scientifique (CNRS), Proto Manufacturing, Dectris Ltd, Ultra-RS and Stresstech.
They also want to thank **Université de Technologie de Troyes** for supporting the practical organization.

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