Advanced Structural Materials

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This volume is a compilation of papers that were presented at Symposium 5, "Advanced Structural Materials," that was held at the XVIII International Materials Research Congress 2009 that took place August 16-21, 2009 in Cancun, Mexico. This symposium was organized in collaboration with the Materials Research Society (MRS). The symposium was devoted to fundamental and technological applications of structural materials, and continued the tradition of providing a forum for scientists from various backgrounds with a common interest in the development and use of structural materials to come together and share their findings and expertise.

The papers contained in this volume are a collection of invited and contributed papers. This year, the symposium was attended by participants from France, India, Japan, Mexico, Portugal, the United States and Spain. All papers have been thoroughly reviewed by at least two referees and edited to the standards of MRS. We are grateful to all those referees who, by their comments and constructive criticism, helped to improve the finally printed papers, and to all the authors who made additional efforts to prepare their manuscripts.

The "Advanced Structural Materials" symposium has been held for the last 12 years with the objective of presenting overview and recent investigations related to advanced structural metallic, ceramic and composite materials. The topics include innovative processing, phase transformations, mechanical properties, oxidation resistance, modeling and the relationship between processing, microstructure and mechanical behavior. Additionally, papers on industrial application and metrology are included.

The organizing committee gratefully acknowledges the enthusiastic cooperation of all of the symposium participants, as well as the kind acceptance of the editorial committee of MRS to publish these proceedings. The organizing committee and the Editors wish to thank the Instituto Politécnico Nacional, Mexico (COFAA, Secretaria de Investigación y Posgrado) and the Centro de Investigación y de Estudios Avanzados del Instituto Politécnico Nacional for their financial support. We hope that all readers will come to consider the "Advanced Structural Materials" symposium at Cancun a suitable forum to present results of their recent research and experience.

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