



Foreword

Computational and Experimental Mechanics of Advanced Materials

This special issue of the *Journal of Engineering Materials and Technology* contains a number of papers in the field of computational and experimental mechanics of advanced materials. Some of the papers were presented at the Euromech Colloquium 429 on this topic, which was held at the Vienna University of Technology, Austria, on September 19 and 20, 2001. The conference was organized by the guest editors of this special issue. Some other papers were selected from regular submissions to JEMT fitting the topic of this issue. All papers in this issue have followed the standard peer-review process of JEMT.

The main objective of this collection of papers is to sum up some current research work on modeling and testing of advanced engineering materials. A considerable percentage of the papers address continuum modeling of the mechanical and thermodynamical behavior of inhomogeneous materials, such as composites, cellular materials, polycrystalline single- and multiphase-materials, and layered materials under static and dynamic loading conditions. Of special interest in this context are phenomena of damage and failure, debonding and interfacial effects, microstructure-property relationships, evolution and reconstruction of microstructures. Other focal points of this issue are the modeling of material inhomogeneities such as domain structures, multi-field studies of active materials, and constitutive nonlinear models and parameter identification for advanced materials.

The guest editors would like to thank all the authors for providing their papers. We express our special thanks to the previous Editor of JEMT, Professor David L. McDowell of Georgia Tech, for giving us the opportunity to organize this special issue. We hope that this volume finds interested readers and serves to stimulate further research in this lively field.

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