

INTRODUCTION

This special issue on *Micromechanical modelling of quasi-brittle materials behavior* represents an outgrowth of presentations given at a symposium of the same title held at the 1991 ASME Applied Mechanics and Biomechanics Summer Conference at the Ohio State University. The symposium was organized to promote communication between researchers in three materials groups: rock, cementitious materials, ceramics and related composites. The enthusiastic response of both speakers and attendants at the ASME symposium convinced the organizer that it would be useful to put together a coherent volume which can reach a larger audience. It was decided that the papers individually and as a volume ought to provide a broader view, so that as much as possible, the work contained in each paper would be accessible to readers working in any of the three materials groups. *Applied Mechanics Reviews* presents an appropriate platform for achieving these objectives.

The common themes of the research conducted in the three materials groups covered in this volume include (1) the quasi-brittle nature of these materials, and (2) the adoption of the micromechanics approach. The micromechanics approach allows the quantitative description of macroscopic properties in terms of material microstructure and micromechanisms and therefore serves as a convenient tool for understanding physical phenomena from a fundamental viewpoint. It also serves as an excellent starting point for constitutive models which can be used to predict structural behavior. In cementitious materials and in ceramics, the fundamental understanding between material structure and properties also provides the opportunity for clever materials engineering. It is hoped that this special issue will stimulate further exchange of ideas between researchers in quasi-brittle materials.

In putting together this volume, many colleagues kindly gave their time in peer-reviewing the papers. The reviewers were L Costin, B Cox, N Fares, DA Hordijk, J Hutchinson, M Kachanov, JM Kemeny, M Maalej, YW Mai, D Marshall, L Myer, SP Shah, Z Suo, and HC Wu. Their generosity is gratefully acknowledged.

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