

Introduction

This volume and the Seventeenth National ASTM Symposium on Fracture Mechanics on which it is based are part of a continuing series. These symposia have become clearly the most prestigious in the field of fracture. As such, they are the focus and forum for quality work in all areas of the field, and this is the important purpose of the symposium and volume.

If the field can be divided into testing and analysis, the former has been and continues to be the more emphasized in this symposium series. This is appropriate, considering the sponsor, ASTM Committee E-24 on Fracture Testing. Nevertheless, analysis is a required part of any test, and much of the work reported here is primarily analysis.

At least four general topics or categories of work frequently occur in the papers: ductile fracture, test method development, surface cracks and crack shape effects, and high temperature and loading rate effects. The prevalence of these four categories attests to the basic practical nature of the field of fracture and of those who work in it. Each of these categories defines an area of important current concern in the design and use of load-carrying components and structures. It is the hope and belief of all those involved that this symposium and volume have contributed to these and other important areas in the field of fracture.

The National Symposium on Fracture Mechanics is often the occasion at which ASTM awards are presented to recognize the achievements of current investigators. At the Seventeenth Symposium two awards were presented. The ASTM Committee E-24 Irwin Medal was presented by Dr. Irwin to Mr. John G. Merkle, Martin Marietta Energy Systems, for his outstanding work in the field of fracture mechanics. The ASTM Award of Merit and honorary title of Fellow were given to Mr. David P. Wilhem, Northrup Corporation, for his distinguished service and leadership in Committee E-24. Dr. J. Gilbert Kaufman, Arco Metals, past chairman of E-24, made the presentation to Mr. Wilhem.

We take this opportunity to thank two groups who deserve a significant share of credit for this symposium. The first is the combined support staff of all of us listed below. The administrative and clerical work of this whole group was essential to the task and is greatly appreciated. The second group is made up of those behind-the-scenes people whose work is nonetheless critical.

In particular, we thank Professor Ray Eisenstadt of Union College for his help in administering the symposium, Mr. Jim Gallivan of the Army Materials and Mechanics Research Center for financial support, the late Dr. Fred

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Schmeideshoff of the Army Research Office for his help in organizing the symposium, and Professor Jerry Swedlow for his continuing support and sound advice during the entire process.

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