



Surface-Crack Growth: Models, Experiments and Structures

**Reuter/Underwood/
Newman, editors**



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Surface-Crack Growth: Models, Experiments, and Structures

*Walter G. Reuter, John H. Underwood, and James C. Newman, Jr.,
editors*



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J. L. Swedlow

1935–1989

Dedication

Dr. Swedlow was one of a rather small but very active group in the early history of Committee E24 on Fracture Testing. Professor Swedlow served in a variety of roles including researcher, organizer, initiator, and expeditor within Committee E24 and within related applied mechanics and fracture mechanics activities.

Professor Swedlow's services to Committee E24 include membership on Fracture Mechanics Test Methods Subcommittee (1965–1973); Representative to International Congress on Fracture (1969–); National Symposium Task Group (1972–1989), Chairman (1977–1989); Executive Committee (1973–). Jerry was the chairman of the organizing committee for the first National Symposium on Fracture Mechanics to be held away from Lehigh University (1970). In subsequent years, Jerry served on the organizing committees of three additional National Symposia and cochairman of the ninth symposium. For many years until his death, Jerry was responsible to Committee E24 for the organizational oversight of all National Symposia. He played a crucial role, along with a few others, in assuring the very high quality and vigor that we have come to associate with these Symposia. In a related activity, Professor Swedlow for the past 20 years served as editor of the Reports of Current Research for the International Journal of Fracture.

Professor Swedlow was also a member of Committee D30 on High Modulus Fibers and Their Composites from 1972 to 1975. During that time, Jerry participated in some of the earliest work on the establishment of test methods and analysis models for the fracture mechanics behavior of graphite/epoxy composites. That initial work is still cited by those active in the research area.

Professor Swedlow's involvement in Committee E24 research activities was primarily focused on the nature of elastoplastic responses of materials with cracks. One of Jerry's principal research concerns in this work was to match numerical responses to experimental data. He established the importance of a proper understanding of uniaxial stress-strain curve development in being able to establish meaningful correlation. Additionally, he was an early contributor regarding the development of ductile fracture criteria and the influence of crack front curvature on plane strain fracture toughness measurements. One of his earliest and abiding research interests related to these issues was that of the three-dimensional character of elastic and elasto-plastic response of cracked bodies. As part of this activity Jerry was involved in studies of the behavior of surface cracks. Some of his contributions in this field are identified in the first paper in this publication. He made numerous presentations within the task group Structure of Committee E24, as well as the National Symposia.

Committee E24 has recognized the many diverse and critical contributions made by Professor Swedlow. In recognition of these, ASTM conferred upon Jerry the singular honor of Fellow of ASTM in 1984. Jerry was also this year named the first recipient of the Committee E24 Fracture Mechanics Medal Award.

A keen interest in and dedication to the goals of ASTM Committee E24 stands as an example to all of us who will commit to the development and application of research findings through professional associations.

T. A. Cruse

Foreword

The symposium on Surface-Crack Growth: Models, Experiments, and Structures was held in Sparks, Nevada, 25 April 1988. The symposium was sponsored by ASTM Committee E24 on Fracture Testing, Walter G. Reuter, Idaho National Engineering Laboratory, John H. Underwood, U.S. Army Benet Laboratories, and James C. Newman, Jr., NASA Langley Research Center, presided as symposium cochairmen and are editors of this publication.

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