The spectrum of interest of contributors will be integrated within the following subject groups.

LINEAR ELASTIC FRACTURE MECHANICS will include efficient approaches for linear elastic boundary value problems, innovative numerical and graphics techniques, boundary element approaches, and singular element formulations.

NON-LINEAR FRACTURE ANALYSIS will include elastic–plastic and viscoplastic approaches to fracture prediction in elastomers and in ductile materials under stable and unstable crack growth conditions with the further possibility of large deformation behavior.

FATIGUE CRACK GROWTH will include methods that can cope with fatigue induced cracking in spectrum loadings, and combined fatigue and environmentally affected cracking.

DYNAMIC FRACTURE PROBLEMS will include numerical modeling of fundamental fracture mechanisms and the associated development of efficient numerical solution techniques for crack initiation under intense and rapidly applied loadings, and to rapid crack propagation and crack arrest.

DISCRETE MODELING will include applications of new and innovative computational methods for ceramics and other brittle materials, fiber reinforced composites, concrete, rock, and cracking in weldments, and other multi-phase materials.

CREEP CRACKING AND RUPTURE SIMULATION will include both continuous damage concepts and macroscopic fracture models for materials exhibiting time, temperature, and environmentally influenced behavior.

PRACTICAL APPLICATIONS in which numerical techniques are employed for fracture assessment in practical situations, such as aerospace vehicles, nuclear pressure vessels and piping, cryogenic storage tanks, gas transmission pipelines, armor and anti-armor devices, and railroad wheels and track.

For the convenience of North American researchers, further information can be obtained from: M. F. Kanninen, Engineering and Materials Sciences Division, Southwest Research Institute, PO Drawer 28510, San Antonio, TX 78284, U.S.A. (Tel. 512-522-3248).

IUTAM/ICM SYMPOSIUM YIELDING, DAMAGE AND FAILURE OF ANISOTROPIC SOLIDS ANTONI SAWCZUK IN MEMORIAM

Grenoble (France), 24–28 *August* 1987

Scientific committee

Prof. J. P. Boehler (France), Co-Chairman
Dr V. Tvergaard (Denmark), Co-Chairman
Prof. P. Germain (France)
Prof. Z. Hashin (Israël)
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Prof. Y. S. Podstrigach (U.S.S.R.)
Prof. A. J. M. Spencer (U.K.)
Dr R. Talreja (Denmark)
Prof. J. Willis (U.K.)

Scope and purpose

Natural materials such as soils, rocks, bones and wood, as well as artificial materials such as metals, fibre-reinforced composites and laminates, possess innate or deformation induced *oriented* microstructures, which give rise to evolving anisotropy in macroscopic behaviour, up to failure. The inelastic behaviour of such anisotropic solids, in the presence of yielding, damage and failure, is of importance in modern technology and therefore has attracted increasing research interest in constitutive laws, methods of analysis, experiments and design.

The various types of natural and deformation induced anisotropies influence, in an

intricate and complex manner, irreversible phenomena which occur at different length scales and lead to failure of materials. Until recently, in most of the work in this area, special cases were considered separately and various *ad hoc* models were proposed to describe particular aspects of anisotropic phenomena. Moreover, most of the present experimental techniques are not entirely suitable to study intricate and possibly important aspects of anisotropic behaviour, so that an experimental assessment of theoretical models is often lacking. Clearly, more interdisciplinary and unifying work is needed in the study of these multifaceted problems. Thus, the Symposium proposes to bring together specialists in mechanics of solids, material scientists and engineers, to evaluate the present state of knowledge and to stimulate unifying approaches in the field of yielding, damage and failure of anisotropic solids.

Topics

(a) Mathematical modelling of non-linear inelastic behaviour of solids, which exhibit initial or (and) deformation induced anisotropy; plasticity, creep, internal damage, localization and failure. Representation of initial and deformation induced anisotropy. Methods for incorporating relevant aspects of oriented internal microstructures into the macroscopic description of mechanical behaviour in the inelastic and failure ranges.

(b) Experimental studies of the macroscopic inelastic behaviour of anisotropic solids; multiaxial stressing; influence of the loading path; rate effects; thermal effects. Development of experimental techniques to obtain, in anisotropic solids, macroscopically homogeneous fields of stress and deformation.

(c) Microscopic study of the deformation induced changes in internal structures (initiation and growth of voids, micro-cracks, dislocation cells, etc.; anisotropy of the resultant microstructures). Systematic study of the influence of evolving microstructures on the macroscopic behaviour of solids, including failure. Non-destructive experimental techniques.

(d) Novel methods for solving boundary and initial value problems in cases where anisotropy is of importance and where localization, damage and failure might take place.

(e) Approximate analysis of engineering structures (e.g. bounds for load carrying capacity, life time, etc.) in the presence of yielding, internal damage and anisotropy.

A few survey reports are intended to give the current state of knowledge in some fields.

Call for papers and participation

Participation at the symposium is by invitation. Interested authors are requested to send a summary (800–1000 words) by the end of November 1986. The summary should clearly state the problem considered, the objectives to be attained, the method employed and the novel results arrived at. The authors will be informed by the end of February 1987 on the status of their submitted proposals. Manuscripts of accepted contributions must be submitted by the end of April 1987. Proceedings are planned to be published in a special volume.

Attendance by non-speakers is possible. Interested persons are required to write, by the end of November 1986, to: Professor Jean-Paul Boehler, Institut de Mécanique de Grenoble, B.P. 68, 38402 Saint Martin d'Heres Cedex, France. The symposium will be dedicated to the memory of Professor Antoni Sawczuk (1927–1984).

INTERNATIONAL CONFERENCE ON COMPUTATIONAL METHODS FOR PREDICTING MATERIAL PROCESSING DEFECTS

Cachan, France, 8–11 *September* 1987

Defects arising in both bulk and sheet forming operations on metals, polymers and composite materials will be considered. Appropriate methods for explaining and avoiding the