

1. Record Nr.	UNINA9910814434503321
Titolo	Fracture mechanics : current status, future prospects : proceedings of a conference held at Cambridge University, 16 March 1979 / / editor, R. A. Smith ; organised by Cambridge University Engineering Department, in conjunction with the Society of Environmental Engineers
Pubbl/distr/stampa	Toronto, Ontario : , : Pergamon Press, , 1979 ©1979
ISBN	1-4831-5891-8
Edizione	[First edition.]
Descrizione fisica	1 online resource (255 p.)
Collana	International series on the strength and fracture of materials and structures Fracture mechanics
Disciplina	620.1/126
Soggetti	Fracture mechanics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references at the end of each chapters.
Nota di contenuto	Front Cover; Fracture Mechanics: Current Status, Future Prospects; Copyright Page; Table of Contents; INTRODUCTION; CHAPTER 1. MICROMECHANISMS OF FRACTURE IN STATIC AND CYCLIC FAILURE; Abstract; 1. Introduction; 2. Micromechanisms of Fracture; 3. Fracture Mechanism Maps; 4. Maps for Metals and Ceramics; 5. Mechanisms of Fracture and Order of Magnitude of $K_c$ and $G_c$ ; 6. Mechanisms of Fracture and Fatigue Crack Growth; 7. Summary; Acknowledgements; References; CHAPTER 2. THEORETICAL BACKGROUND TO ELASTIC FRACTURE MECHANICS; Summary; 1. Introduction; 2. Modes of Crack Surface Displacement 3. Stress Intensity Factors 4. Effect of Yielding; 5. Measuring Fracture Toughness; 6. Fatigue Crack Growth; 7. Short Crack Limitations; 8. Combined Mode Behaviour; 9. Conclusions; Acknowledgements; Notation; APPENDIX; REFERENCES; CHAPTER 3. APPLICATION OF FRACTURE MECHANICS TO INDUSTRIAL PROBLEMS; Summary; 1) INTRODUCTION; 2) FATIGUE CRACKING IN A LARGE GENERATOR ROTOR; 3) CREEP CRACKING IN CrMoV PIPEWORK WELDS; 4) STRESS-CORROSION CRACKING IN STEAM TURBINE DISCS; 5) CONCLUDING REMARKS; 6) ACKNOWLEDGEMENT; 7) REFERENCES; CHAPTER 4. GREEN'S FUNCTIONS IN FRACTURE MECHANICS; Summary

1. Introduction2. Basic principles of Green's functions; 3. Stress intensity factors as Green's functions; 4. Systematic use of Green's functions; 5. Available Green's functions; 6. Simple methods expressed as Green's functions; 7. Applications of Green's functions; 8. Conclusions; References; CHAPTER 5. VARIABLE AMPLITUDE FATIGUE OF WELDED STRUCTURES; INTRODUCTION; ANALYSIS OF VARIABLE AMPLITUDE FATIGUE; CRACK SHAPE PROBLEMS; K HISTORY; CONCLUSIONS; ACKNOWLEDGEMENTS; NOMENCLATURE; REFERENCES; CHAPTER 6. PROBABILISTIC FRACTURE MECHANICS; Abstract; 1. INTRODUCTION; 2. GENERAL PHYSICAL ASPECTS 3. GENERAL MATHEMATICAL FORMULATION4. THE DISTRIBUTION FUNCTIONS; 5. APPLICATIONS; 6. CONCLUSIONS; References; CHAPTER 7. ELEVATED TEMPERATURE FRACTURE MECHANICS; SUMMARY; INTRODUCTION; CRACK CHARACTERISATION; CREEP CRACK GROWTH; FATIGUE AND CREEP-FATIGUE CRACK GROWTH; CONCLUDING REMARKS; REFERENCES; APPENDIX: CAVITY LINKAGE BY A CRACK DISPLACEMENT FIELD; CHAPTER 8. FRACTURE MECHANISMS IN FIBROUS COMPOSITES; Abstract; 1. Introduction; 2. Models of Fracture; 3. Statistical Analysis of Fracture; 4. Estimation of Fracture Energy; 5. Energies of Crack Initiation and Crack Propagation 6. ConclusionsReferences; Acknowledgements; CHAPTER 9. FRACTURE CRITERIA IN ELASTIC AND ELASTIC/PLASTIC SOLIDS; SUMMARY; INTRODUCTION; PLASTIC ZONE SIZE CORRECTION; THE PLANE STRAIN/PLANE STRESS TRANSITION; INITIATION AND PROPAGATION; THE J INTEGRAL CRITERION FOR FRACTURE; THE CRACK OPENING DISPLACEMENT; SLOW CRACK GROWTH; THE PRESENT POSITION; REFERENCES

---

Sommario/riassunto

Fracture Mechanics

---