

1. Record Nr.	UNINA9910819549703321
Titolo	Advances and trends in structures and dynamics : papers presented at the Symposium on Advances and Trends in Structures and Dynamics, held 22-25 October 1984, Washington, D. C. // guest editors, Ahmed K. Noor and Robert J. Hayduk
Pubbl/distr/stampa	Elmsford, New York : , : Pergamon Press, , 1985 ©1985
ISBN	1-4831-5006-2
Descrizione fisica	1 online resource (668 p.)
Disciplina	624.17
Soggetti	Structural analysis (Engineering) Structural dynamics
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; Advances and Trends in Structures and Dynamics; Copyright Page; Table of Contents; PREFACE; PART 1: TRENDS IN ENGINEERING SOFTWARE AND HARDWARE; CHAPTER 1.KNOWLEDGE-BASED EXPERT SYSTEMS IN STRUCTURAL DESIGN; Abstract; INTRODUCTION; OVERVIEW OF KBES; OVERVIEW OF STRUCTURAL DESIGN PROCESS; PRELIMINARY DESIGN; ANALYSIS; DETAILED DESIGN; INTEGRATED SYSTEM; CONCLUSIONS; REFERENCES; CHAPTER 2. GENERATIVE ENGINEERING DATABASES-TOWARD EXPERT SYSTEMS; Abstract; INTRODUCTION; THE DESIGN PROCESS; DEVELOPMENTS TO DATA; DATABASE MANAGEMENT SYSTEMS; EXPERT SYSTEMS; DBMS EXTENSIONS; SUMMARY REFERENCESCHAPTER 3.EVALUATION OF FINITE ELEMENT SYSTEM ARCHITECTURES; Abstract; INTRODUCTION; PARALLELISM AND PARALLEL PROCESSING IN THE FINITE ELEMENT METHOD; MODELING AND SCHEDULING A FINITE ELEMENT SYSTEM ARCHITECTURE; EXAMPLES; CONCLUSIONS; REFERENCES; CHAPTER 4.AUTOMATIC MESH GENERATION FOR THREE-DIMENSIONAL SOLIDS; Abstract; 1. INTRODUCTION; 2. MODIFIED-OCTREE ENCODING; 3. MESH GENERATION FROM MODIFIED-OCTREES; 4. MODIFIED-OCTREE MESH GENERATION FOR SUPERQUADRIC MODELS; 5. CONCLUDING REMARKS;

REFERENCES; CHAPTER 5.COMPUTER LITERACY: MAINFRAME MONSTERS AND PACMAN; Abstract; INTRODUCTION  
THE ALGORITHMIC APPROACHCOMPUTER GRAPHICS; APPLICATION; CONCLUSION; REFERENCES; CHAPTER 6.STRUCTURAL COMPUTATIONS ON THE CEDAR SYSTEM; Abstract; 1. INTRODUCTION; 2. THE CEDAR ARCHITECTURE; 3. PARAFRASE; 4. TWO ELEMENTARY ALGORITHMS ON THE CEDAR; 5. A PRECONDITIONED C. G. SCHEME FOR THE 2-D LAPLACE EQUATION; 6. A DIRECT 3-D POISSON SOLVER ON THE CEDAR; REFERENCES; CHAPTER 7.SYSTOLIC ARRAYS FOR FINITE ELEMENT ANALYSIS; Abstract; INTRODUCTION; NOTATION FOR BANDED MATRICES; SYSTOLIC VLSI ARCHITECTURES; SYSTOLIC ALGORITHMS AND PRIMITIVE FUNCTIONAL MODULES; CONFIGURATION OF A FINITE ELEMENT SYSTEM  
SYSTOLIC NETWORKS FOR STIFFNESS METHOD OF FINITE ELEMENT ANALYSIS; SYSTOLIC NETWORK FOR NATURAL FACTOR APPROACH OF FINITE ELEMENT ANALYSIS; CONCLUDING REMARKS; REFERENCES; CHAPTER 8.ON THE DESIGN OF A PIPELINED/SYSTOLIC FINITE ELEMENT SYSTEM; Abstract; 1. INTRODUCTION; 2. PROBLEM SPECIFICATION; 3. THE GENERATION OF ELEMENTAL ARRAYS; 4. THE EFFECT OF BOUNDARY CONDITIONS; 5. SYSTEMS THAT EMPLOY DIRECT SOLVERS; 6. POSSIBLE IMPLEMENTATIONS FOR ASSEMB AND FACT; 7. SYSTEMS THAT EMPLOY ITERATIVE SOLVERS; 8. CONCLUSION; Acknowledgments; REFERENCES; CHAPTER 9.STRUCTURAL ANALYSIS ON THE FPS-164  
INTRODUCTION; COMPUTER-AIDED ENGINEERING (CAE); STRUCTURAL ANALYSIS COMPUTATION KERNELS; THE FPS-164; The FPS-164 HARDWARE; FPS-164 SOFTWARE; FAST MATRIX SOLUTION LIBRARY (FMSLIB); PERFORMANCE OF THE FPS-164; FUTURE TRENDS; SUMMARY; REFERENCES; PART 2:TRENDS IN NUMERICAL ANALYSIS AND PARALLEL ALGORITHMS; CHAPTER 10.A PROGRAM DESIGN FOR AN ADAPTIVE, NONLINEAR FINITE ELEMENT SOLVER; Abstract; 1. INTRODUCTION; 2. MATHEMATICAL BASIS OF THE DESIGN; 3. NFEARS CONTROL STRUCTURE; 4. NFEARS DATA STRUCTURE; REFERENCES; CHAPTER 11. ERROR ESTIMATES FOR NONLINEAR FINITE ELEMENT COMPUTATIONS; Abstract  
1. INTRODUCTION

---

#### Sommario/riassunto

Advances and Trends in Structures and Dynamics contains papers presented at the symposium on Advances and Trends in Structures and Dynamics held in Washington, D.C., on October 22-25, 1984. Separating 67 papers of the symposium as chapters, this book documents some of the major advances in the structures and dynamics discipline. The chapters are further organized into 13 parts. The first three parts explore the trends and advances in engineering software and hardware; numerical analysis and parallel algorithms; and finite element technology. Subsequent parts show computational strategies for n

---