

Nam-Ho Kim

## Introduction to Nonlinear Finite Element Analysis

This book introduces the key concepts of nonlinear finite element analysis procedures. The book explains the fundamental theories of the field and provides instructions on how to apply the concepts to solving practical engineering problems. Instead of covering many nonlinear problems, the book focuses on three representative problems: nonlinear elasticity, elastoplasticity, and contact problems. The book is written independent of any particular software, but tutorials and examples using four commercial programs are included as appendices: ANSYS, NASTRAN, ABAQUS, and MATLAB. In particular, the MATLAB program includes all source codes so that students can develop their own material models, or different algorithms.

This book also:

- Presents clear explanations of nonlinear finite element analysis for elasticity, elastoplasticity, and contact problems
- Includes many informative examples of nonlinear analyses so that students can clearly understand the nonlinear theory
- Offers practical applications of FEM to engineering analysis, providing a balance between theory and practice

Engineering

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