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Autore	Kaveh A (Ali), <1948->
Titolo	Swift Analysis of Civil Engineering Structures Using Graph Theory Methods // by Ali Kaveh, Hossein Rahami, Iman Shojaei
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Nota di contenuto	Definitions from Graph Theory and Graph Products -- Basic Concepts and Definitions of Symmetry and Regularity -- Static Analysis of Near-regular Skeletal Structures: Additional Members -- Static Analysis of Near-regular Skeletal Structures: Additional Nodes -- Static Analysis of Nearly Regular Continuous Domains -- Dynamic Analysis of Near-Regular Structures -- Swift Analysis of Linear and Non-Linear Structures and Applications Using Reanalysis -- Global Near-regular Mechanical Systems -- Mappings for Transformation of Near-Regular Domains to Regular Domains -- Numerical Solution for System of Linear Equations Using Tridiagonal Matrix.
Sommario/riassunto	This book proposes and validates a number of methods and shortcuts for frugal engineers, which will allow them to significantly reduce the computational costs for analysis and reanalysis and, as a result, for structural design processes. The need for accuracy and speed in analyzing structural systems with ever-tighter design tolerances and larger numbers of elements has been relentlessly driving forward research into methods that are capable of analyzing structures at a reasonable computational cost. The methods presented are of particular value in situations where the analysis needs to be repeated hundreds or even thousands of times, as is the case with the optimal

design of structures using different metaheuristic algorithms. Featuring methods that are not only applicable to skeletal structures, but by extension also to continuum models, this book will appeal to researchers and engineers involved in the computer-aided analysis and design of structures, and to software developers in this field. It also serves as a complement to previous books on the optimal analysis of large-scale structures utilizing concepts of symmetry and regularity. Further, its novel application of graph-theoretical methods is of interest to mathematicians.

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