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Titolo	Meta-heuristic Algorithms for Optimal Design of Real-Size Structures / / by Ali Kaveh, Majid Ilchi Ghazaan
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ISBN	3-319-78780-2
Edizione	[1st ed. 2018.]
Descrizione fisica	1 online resource (172 pages)
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Soggetti	Applied mathematics Engineering mathematics Mathematical optimization Mechanical engineering Building construction Mathematical and Computational Engineering Optimization Mechanical Engineering Solid Construction
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
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Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	Introduction -- Optimization algorithms used in the book -- Optimum design of usual-size skeletal structures -- Optimum design of large-scale special truss structures -- Optimal design of double-layer grids -- Optimal design of double-layer barrel vault space structures -- Optimum design of dome shaped trusses -- Optimal design of steel lattice transmission line towers -- Optimum seismic design of 3D steel frames.
Sommario/riassunto	The contributions in this book discuss large-scale problems like the optimal design of domes, antennas, transmission line towers, barrel vaults and steel frames with different types of limitations such as strength, buckling, displacement and natural frequencies. The authors use a set of definite algorithms for the optimization of all types of structures. They also add a new enhanced version of VPS and information about configuration processes to all chapters. Domes are

of special interest to engineers as they enclose a maximum amount of space with a minimum surface and have proven to be very economical in terms of consumption of constructional materials. Antennas and transmission line towers are the one of the most popular structure since these steel lattice towers are inexpensive, strong, light and wind resistant. Architects and engineers choose barrel vaults as viable and often highly suitable forms for covering not only low-cost industrial buildings, warehouses, large-span hangars, indoor sports stadiums, but also large cultural and leisure centers. Steel buildings are preferred in residential as well as commercial buildings due to their high strength and ductility particularly in regions which are prone to earthquakes.