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Titolo	Mathematical Geosciences : Hybrid Symbolic-Numeric Methods // by Joseph L. Awange, Béla Paláncz, Robert H. Lewis, Lajos Völgyesi
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ISBN	3-319-67371-8
Edizione	[1st ed. 2018.]
Descrizione fisica	1 online resource (XXVII, 596 p. 460 illus., 440 illus. in color.)
Disciplina	550.151
Soggetti	Geology Mathematical physics Environmental sciences Geographical information systems Atmospheric sciences Mathematical Applications in the Physical Sciences Math. Appl. in Environmental Science Geographical Information Systems/Cartography Atmospheric Sciences
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Solution of algebraic polynomial systems -- Homotopy solution of nonlinear systems -- Over and underdetermined systems -- Simulated annealing -- Genetic algorithm -- Particle swarm optimization -- Integer programming -- Multiobjective optimization -- Approximation with radial bases functions -- Support vector machines (SVM) -- Symbolic regression -- Quantile regression -- Robust regression -- Stochastic modeling -- Parallel computations.
Sommario/riassunto	This book showcases powerful new hybrid methods that combine numerical and symbolic algorithms. Hybrid algorithm research is currently one of the most promising directions in the context of geosciences mathematics and computer mathematics in general. One important topic addressed here with a broad range of applications is the solution of multivariate polynomial systems by means of resultants and Groebner bases. But that's barely the beginning, as the authors

proceed to discuss genetic algorithms, integer programming, symbolic regression, parallel computing, and many other topics. The book is strictly goal-oriented, focusing on the solution of fundamental problems in the geosciences, such as positioning and point cloud problems. As such, at no point does it discuss purely theoretical mathematics. "The book delivers hybrid symbolic-numeric solutions, which are a large and growing area at the boundary of mathematics and computer science." Dr. Daniel Lichtbau.
