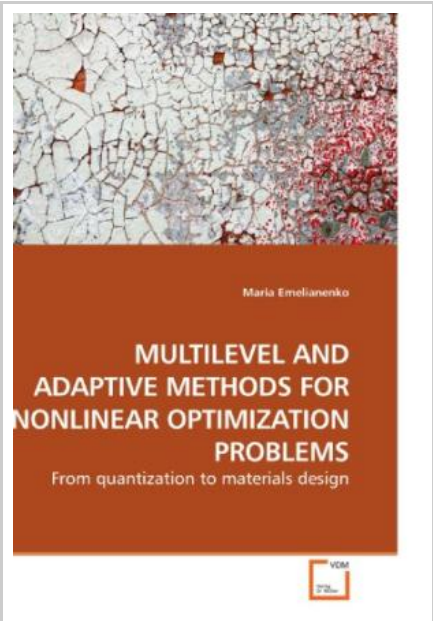

MULTILEVEL AND ADAPTIVE METHODS FOR NONLINEAR OPTIMIZATION PROBLEMS

By Maria Emelianenko

VDM Verlag Jan 2010, 2010. Taschenbuch. Book Condition: Neu. 220x149x15 mm. Neuware - This work discusses some novel multilevel and adaptive methods for nonlinear non-convex optimization, focusing on two particular problems that come from the fields of materials science and quantization, with numerous applications, including image/signal compression, mesh generation and optimal placement of resources in the context of centroidal Voronoi tessellations. In particular, several acceleration methods for quantization are developed, including Newton-type and multilevel algorithms, both of which yield significant speedup comparing to traditional methods. Rigorous convergence analysis is provided and uniform convergence of the multilevel scheme with respect to the grid size and the number of grid levels is demonstrated. A new adaptive scheme for automating phase diagram construction in complex multicomponent materials systems is proposed. The new method utilizes the geometric properties of the energy surfaces together with effective sampling techniques to improve on the starting points for the minimization, which allows for a more accurate detection of miscibility gaps and more reliable materials characterization. 116 pp. Englisch.

Reviews

This book is really gripping and fascinating. I was able to comprehended every little thing out of this published e pdf. Your life span will likely be transform when you full looking at this ebook.

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