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**Scientific computing with MATLAB and Octave. 4th ed.**

Texts in Computational Science and Engineering 2. Berlin: Springer (ISBN 978-3-642-45366-3/hbk; 978-3-642-45367-0/ebook). xviii, 442 p. (2014).

The fourth English edition of this textbook contains a new chapter on the minimization of functions of one and severable variables. For unconstrained minimization, derivative free methods like the golden section method, quadratic interpolation method and the Nelder and Mead method are considered first. It is followed by a presentation of descent methods such as Newton's method, quasi-Newton methods, gradient methods, and conjugate gradient methods. Nonlinear least squares methods and trust region methods are also covered. For the constrained minimization of functions, penalty term methods and augmented Lagrangian methods are treated. As for the other chapters of this text, this new chapter also contains applications from different areas, examples, illustrations, MATLAB/Octave codes and exercises. In addition, new sections are added in some other chapters. For the third edition see [(2010; Zbl 1205.65002)]. *Robert Plato (Siegen)*

*Classification:* N15

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