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	Titolo	Newton's method: an updated approach of Kantorovich's theory / / by José Antonio Ezquerro Fernández, Miguel Ángel Hernández Verón
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	Disciplina	511.4
	Soggetti	Operator theory
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		Operator Theory
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	Nota di bibliografia	Includes bibliographical references.
	Nota di contenuto	The classic theory of Kantorovich -- Convergence conditions on the second derivative of the operator -- Convergence conditions on the k-th derivative of the operator -- Convergence conditions on the first derivative of the operator.
	Sommario/riassunto	This book shows the importance of studying semilocal convergence in iterative methods through Newton's method and addresses the most important aspects of the Kantorovich's theory including implicated studies. Kantorovich's theory for Newton's method used techniques of functional analysis to prove the semilocal convergence of the method by means of the well-known majorant principle. To gain a deeper understanding of these techniques the authors return to the beginning and present a deep-detailed approach of Kantorovich's theory for Newton's method, where they include old results, for a historical perspective and for comparisons with new results, refine old results, and prove their most relevant results, where alternative approaches leading to new sufficient semilocal convergence criteria for Newton's method are given. The book contains many numerical examples

involving nonlinear integral equations, two boundary value problems and systems of nonlinear equations related to numerous physical phenomena. The book is addressed to researchers in computational sciences, in general, and in approximation of solutions of nonlinear problems, in particular.