

Metric Regularity and Newton's Method for Solving Generalized Equations

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Abstract: In this work, we present results on stability of both local and global metric regularity under set-valued perturbations. As an application, we study (super-)linear convergence of a Newton-type iterative process for solving generalized equations. We investigate several iterative schemes such as the inexact Newton's method, the non-smooth Newton's method for semi-smooth functions, the inexact proximal point algorithm, etc. Moreover, the note also covers a forward-backward splitting algorithm for finding a zero of the sum of two multivalued (not necessarily monotone) operators. Finally, a globalization of the Newton's method is discussed.

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