SEMINARIO

OPTIMIZACIÓN Y EQUILIBRIO

EXPOSITOR

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TITULO

Newton's method for solving inclusions using set-valued approximations

Abstract:

Results on stability of both local and global metric regularity under set-valued perturbations are presented. As an application, we study (super-)linear convergence of the Newton-type iterative process for solving generalized equations. The possibility to choose set-valued approximations allows us to describe several iterative schemes in a unified way (such as inexact Newton method, non-smooth Newton method for semi-smooth functions, inexact proximal point algorithm, etc.). Moreover, it also covers a forward-backward splitting algorithm for finding a common zero of the sum of two multivalued (not necessarily monotone) operators. Finally, a globalization of the Newton's method is discussed. The theoretical results discussed in this talk may open a new field of applications for the development of new algorithms for solving variational problems using modern non-smooth analysis tools. This is a joint work with R. Cibulka and H.V. Ngai

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