Electronic Journal: Southwest Journal of Pure and Applied Mathematics
Internet: http://rattler.cameron.edu/swjpam.html
ISSN 1083-0464
Vol. No. 02, 1996, pp. 34–41
Submitted: June 17, 1996. Published: September 9, 1996.

ON THE CONVERGENCE OF PERTURBED NEWTON-LIKE METHODS IN BANACH SPACE AND APPLICATIONS

Ioannis K. Argyros

Abstract. In this study we use disturbed Newton-like methods to approximate a locally unique solution of a nonlinear equation containing a nondifferentiable term. We choose the linear operators to be inverted at every step of the computation of the Newton iterates to be associated not only with the differentiable part of the equation as it has happened so far but also with the nondifferentiable part. This way the upper error bounds on the distances are smaller than before.

(1991) A.M.S. Subject Classification Codes. 65J15, 65B05, 65L50, 47H17, 49D15.

Key Words and Phrases. Disturbed Newton-like methods, Banach space, Mysovskii theorem, divided difference of order one, Fréchet-derivative.

Cameron University, Lawton, Oklahoma
E-mail Address: ioannisa@cameron.edu