

## ITERATIVE PROCESSES FOR ILL-POSED PROBLEMS WITH A MONOTONE OPERATOR

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We consider the problem on constructing a stable approximate solution of an inverse problem formulated as a nonlinear irregular equation with a monotone operator. We suggest a two-stage method based on Lavrentiev's regularization scheme and iterative approximation with the use of either modified Newton's method or a regularized  $\kappa$ -process. We prove that the iterative processes converge and the iterations possess the Fejer property. We show that our method generates a regularization algorithm under a certain adjustment of control parameters. On the set of source-like representable solutions, we find an optimal-order error estimate for the algorithm.

*Key words and phrases:* ill-posed problem, Lavrentiev's regularization scheme, Newton's method,  $\kappa$ -processes, error estimation.

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