Dan, Hiroshige; **Yamashita, Nobuo**; **Fukushima, Masao**

Convergence properties of the inexact Levenberg-Marquardt method under local error bound conditions. (English) Zbl 1030.65049

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The authors prove that the inexact Levenberg-Marquardt method (ILMM) for solving nonlinear equations has a superlinear rate of convergence under a local error bound assumption. Moreover, they prove that the ILMM combined with Armijo's stepsize rule has global convergence. Numerical results are reported for a number of test problems where some solutions are not locally unique solutions but local error bounds are provided in the solution neighborhoods.

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inexact Levenberg-Marquardt method; superlinear convergence; nonlinear equations; error bound; Armijo's stepsize rule; global convergence; numerical results

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