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Local convergence of a one parameter fourth-order Jarratt-type method in Banach spaces

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Abstract: We present a local convergence analysis of a one parameter Jarratt-type method. We use this method to approximate a solution of an equation in a Banach space setting. The semilocal convergence of this method was recently carried out in earlier studies under stronger hypotheses. Numerical examples are given where earlier results such as in [Ezquerro J.A., Hernández M.A., *New iterations of R-order four with reduced computational cost*, BIT Numer. Math. **49** (2009), 325–342] cannot be used to solve equations but our results can be applied.

Keywords: Banach space; Newton's method; local convergence; radius of convergence
AMS Subject Classification: 65D10, 65D99

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