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On the order of convergence of Adomian method. (English) Zbl 1044.65043

Appl. Math. Comput. 130, No. 2-3, 383-387 (2002).

The authors consider an approximate solution of the equation $y - N(y) = f$ where N is a nonlinear operator from a Hilbert space onto itself. They state (without proof) that the Adomian decomposition method for the above equation is equivalent to solving the equation $S = N(y_0 + S)$ by iteration, $S_{n+1} = N(y_0 + S_n)$, and obtain the order of convergence of (S_n) to S under certain smoothness assumptions on N . Here y_0 is supposed to be f and $S = y - y_0$.

Reviewer: [M. Thamban Nair \(Chennai\)](#)

MSC:

[65J15](#) Numerical solutions to equations with nonlinear operators

[47J25](#) Iterative procedures involving nonlinear operators

Cited in **1** Review

Cited in **35** Documents

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[Adomian's polynomials](#); [nonlinear operator equation](#); [Hilbert space](#); [Adomian decomposition method](#); [convergence](#)

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