

Use of Adomian and Restarted Adomian Methods for Solving Algebraic Equations

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ABSTRACT

Nonlinear algebraic equations arise frequently in the modeling of many engineering systems. More specifically, these equations appear while mathematically representing the steady state model of a lumped parameter system, e.g. a continuous stirred tank reactor, single or multiple effect evaporators, flash drum etc. In this study, the application of two efficient methods namely, Adomian Decomposition Method (ADM) and one of its variant namely, Restarted ADM (RADM) has been demonstrated by solving an algebraic equation. Some peculiar characteristics of the obtained solutions, depicting the advantages and limitations of these methods, are shown and discussed, which may be followed while solving nonlinear algebraic equations.

Keywords: Adomian decomposition, Algebraic equations, Numerical Solution
