New Predictor-Corrector Methods Based on Exponential Time Differencing for Systems of Nonlinear Differential Equations

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Abstract: We present the new predictor-corrector methods for systems of nonlinear differential equations, based on the method of exponential time differencing. We compare the present schemes with the explicit multistep exponential time differencing and Adams-Bashforth-Moulton method. The numerical results show that the schemes are more accurate and more efficient than Adams predictor-corrector method. The exponential time differencing method has been developed and perfected by the present studies.

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