

A fourth algebraic order explicit trigonometrically- fitted modified Runge-Kutta method for the numerical solution of periodic IVPs

ABSTRACT

This study has constructed an explicit Trigonometrically-Fitted Modified Runge-Kutta (TFMRK) method for solving first-order differential equations with periodic solutions. The newly developed method was made according to the method of Runge-Kutta Dorm and to fourth algebraic order. Numerical results for the new method were compared with the existing method, showing the potential of the new method over other existing methods.

Keyword: Runge-Kutta methods; Trigonometrically-fitting; Periodic solutions