Fifth-order four-stage explicit trigonometrically-fitted Runge–Kutta–Nyström methods

ABSTRACT

In this study, we derive fifth-order four-stage explicit trigonometrically-fitted Runge–Kutta–Nyström (ETFRKN) methods for the numerical integration of second-order initial value problems with oscillatory solutions based on Simos technique. The numerical results show the efficiency of the proposed methods in comparison with other Runge–Kutta–Nyström (RKN) Methods.