

Low storage exponentially fitted explicit Runge-Kutta methods

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In this talk we present the class of numerical methods called “exponentially fitted explicit Runge-Kutta” (EFRK) schemes with the property of minimum storage requirements for systems with large dimension and whose solution is oscillatory or periodic. A study of schemes of the minimum storage family of van der Houwen with orders $p \leq 4$ that require only two storage locations per variable is carried out. Two optimal exponentially fitted RK formulae are deduced taking into account accuracy and stability. The first one is a RK with three-stages and third order, and the second one with four-stages and fourth-order. Finally some numerical experiments are presented to show the behaviour of the new exponentially fitted RK schemes for some periodic problems.