Numerical experiments with some explicit pseudo two-step RK methods on a shared memory computer

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Abstract: This paper investigates the performance of two explicit, pseudo two-step Runge-Kutta methods of order 5 and 8 for first-order nanstiff ODEs on a parallel shared memory computer. For expensive right-hand sides the parallel implementation gives a speed-up of 3-4 with respect to the sequential one. Furthermore, we compare the codes with the two efficient nonstiff codes DOPRI5 and DOP853. For problems where the stepsize is determined by accuracy rather than by stability our codes are shown to be more efficient. ?? 1998 Elsevier Science Ltd. All rights reserved.

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