

Strong Stability Preserving Linear High Order Time Discretization Methods

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Strong stability preserving (SSP) Runge-Kutta time discretization methods are useful for semidiscrete method of lines approximation of partial differential equations. These high order methods preserve the strong stability property of first order Forward Euler time discretization. Of special consideration are SSP Runge-Kutta methods for linear problems. For linear problems, the N -stage Runge-Kutta method will be k -th order with optimal CFL $N + 1 - k$. The case of time dependent, linear operators will also be presented.