Numerical Evolution Methods of Rational Form for Diffusion Equations

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Abstract : The purpose of this study was to investigate selected numerical methods that demonstrate good performance in solving PDEs. We adapted alternative method that involve rational polynomials. Padé time stepping (PTS) method, which is highly stable for the purposes of the present application and is associated with lower computational costs, was applied. Furthermore, PTS was modified for our study which focused on diffusion equations. Numerical runs were conducted to obtain the optimal local error control threshold.