

A review for the time integration of semi-linear stiff problems

Abstract

Several real-world requests that involve conditions where different physical phenomena perform on very different time scales arise simultaneously. The partial differential equations (PDEs) that manage such situations are classified as stiff PDEs. Stiffness is a difficult property of differential equations (DEs) that avoid conservative explicit numerical integrators from managing problem efficiency. There has also been a large compact of importance in the building of exponential integrators. However, different some of the new literature proposes, integrators based on this philosophy have been confirmed since at least 1960. The aim of this study is to review the time integration proposed for semi-linear stiff problems.