

THE STABILITY ANALYSIS OF THE θ -METHODS FOR DELAY DIFFERENTIAL EQUATIONS

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摘要

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THE STABILITY ANALYSIS OF THE θ -METHODS FOR DELAY DIFFERENTIAL EQUATIONS

H.J.Tian,J.X.Kuang

Department of Mathematics, Shanghai Normal University, Shanghai, China

Abstract This paper deals with the stability analysis of θ -methods for the numerical solution of delay differential equations (DDEs). We focus on the behaviour of such methods in the solution of the linear test equation $y^{\prime}(t)=a(t)y(t)+b(t)y(t-\tau)$, where $\tau > 0$, $a(t)$ and $b(t)$ are functions from \mathbb{R} to \mathbb{C} . It is proved that the linear θ -method and the one-leg θ -method are TGP-stable if and only if $\theta = 1$.

Key words

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