

Non-uniform mesh high-order discretization for the generalized Burgers Equations

By

Madhav Wagley

South Asian Univesity, New-Delhi, India

Using several properties of the polynomial splines, we first discuss the discretization of the first order spatial derivatives at different nodal points. Using such discretization we derive a scheme that is fourth-order accurate for the numerical solution of parabolic PDEs on a non-uniform mesh. Finally, we discuss the stability theory and compute the numerical results to illustrate the reliability of the scheme.