We propose a mixed method for solving the three-dimensional unsteady vorticity equation by using Fourier method in periodic directions and Chebyshev approximation in another direction. The accuracy of the numerical solution is still of ‘infinite’ order. The generalized stability and convergence are proved strictly.

MSC:
76M25 Other numerical methods (fluid mechanics) (MSC2010)
76D05 Navier-Stokes equations for incompressible viscous fluids
65M70 Spectral, collocation and related methods for initial value and initial-boundary value problems involving PDEs

Keywords:
error estimations; mixed method; generalized stability; convergence

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References:

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