

Abstract Submitted
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A Spectrally-accurate Gridless Method for the Navier-Stokes Equations with Moving Boundaries SYAD HUSSAIN, JERZY M. FLORYAN, University of Western Ontario — A gridless, spectrally-accurate algorithm for the Stokes flow with moving boundaries is presented. The boundaries of the flow domain move inside the fixed computational domain. Spatial discretization uses Fourier and Chebyshev expansions in the streamwise and transverse directions respectively. Temporal discretization is based on first and second order implicit formulations. The boundary conditions on the moving boundaries are imposed using the immersed boundary conditions concept. Numerical tests confirm the spectral accuracy in space and theoretically-predicted accuracy in time.

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