Spectrum and Structure of Evolving Vortex Sheet V. RAJESH,
O.N. RAMESH, Indian Institute of Science — Shear layer structure and dynamics play an important role in understanding turbulent flows. The evolution of the
Vortex sheet, considered as the inviscid/infinite Reynolds number approximation to
the shear layer, has been studied in the literature for its many facets like Kelvin-Helmholtz instability, finite-time singularity and spiral structures formation. In the
present work, a two-dimensional vortex sheet evolution is simulated using Krasny's
vortex blob method in high precision. The nonlinear stage of evolution and the
resulting spectrum are validated against the recent results of Abid & Verga (2011).
The obtained energy spectrum, showing similarities to two-dimensional turbulence
spectrum, is investigated in detail. An attempt at simulating the evolution of three-dimensional disturbances on the vortex sheet and the effect of imposed strain is also
presented.

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