

Interaction Between a Columnar Vortex and External Turbulence

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The interaction between a columnar vortex and external turbulence is investigated numerically. As the columnar vortex, the Lamb-Oseen vortex and the q-vortex are used. The columnar vortex is immersed in an initially isotropic homogeneous turbulence field, which itself is produced by a direct numerical simulation of decaying turbulence. Using visualization techniques, we investigate the formation of inhomogeneous fine turbulent eddies around the columnar vortex, the vortex-core deformations and the dynamical evolution in the passive scalar field.

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