The instability of the vortex antivortex system in hard superconductors

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The possible mechanism of the macroturbulence instability observed in fluxline systems during remagnetization of superconductors is proposed. It is shown that when a region with flux is invaded by antiflux the interface can become unstable if there is a relative tangential flux motion. This condition occurs at the interface owing to the anisotropy of the viscous motion of vortices. The phenomenon is similar to the instability of the tangential discontinuity in classical hydrodynamics. The obtained results are supported by magneto-optical observations of flux distribution on the surface of a YBCO single crystal with twins