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Concentration-cancellation for mixed sign vortex sheets via sparseness

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A famous result of Delort (1991) establishes the concentration-cancellation phenomenon for approximating solutions of 2D Euler equations with a vortex sheet whose vorticity maximal function has a log-decay of order $1/2$. Moreover, this result is optimal in the setting of vortex sheets with distinguished sign. Without distinguished sign, DiPerna and Majda (1987) showed that if the log-decay assumption is strictly larger than 1 then the lack of concentration (and hence energy conservation) holds. Then the gap problem for mixed sign vortex sheets asks: concentration-cancellation vs. energy conservation in the remaining log-range $(1/2, 1]$?

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