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Title: VORTEX LAYERS OF SMALL THICKNESS

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Abstract: In this talk we shall consider a 2D incompressible non viscous flow with an initial datum with vorticity concentrated close to a curve $y = \phi_0(x)$ and exponentially decaying away from it. We shall suppose the vorticity intensity to be $O(\epsilon^{-1})$ while the exponential decay occurs on a scale $O(\epsilon)$. We shall prove that, if the initial data are analytic, the solution of the above problem will preserve the vortex layer structure for a time that does not depend on ϵ . Moreover the dynamics of the layer is well approximated by the motion predicted by the Birkhoff-Rott equation for a vortex sheet of equivalent vorticity intensity.