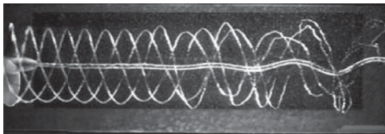


Dynamique non linéaire de vortex hélicoïdaux

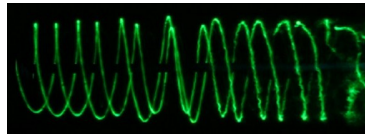
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Can Selçuk, LMSI

Maurice Rossi, CNRS, Sorbonne Université, ∂' Alembert



3 vortex (Felli et al. 2011)



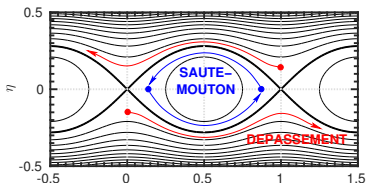
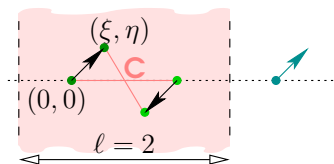
2 vortex (Quaranta et al. 2016)



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- Spatial \rightarrow temporel \rightarrow non visqueux \rightarrow vortex 2D
- ▷ Symétrie centrale imposée
- ▷ Trajectoires : $H = \text{cte}$



$$\begin{pmatrix} \dot{\xi} \\ \dot{\eta} \end{pmatrix} = -\frac{1}{4} \frac{1}{\cosh(2\pi\eta) + \cos(2\pi\xi)} \begin{pmatrix} \sinh(2\pi\eta) \\ \sin(2\pi\xi) \end{pmatrix}$$

$$H = -\frac{1}{4\pi} \log \{ \cosh(2\pi\eta) + \cos(2\pi\xi) \}$$

- \rightarrow 3D hélicoïdal \rightarrow visqueux (DNS $Re = 10000$)

