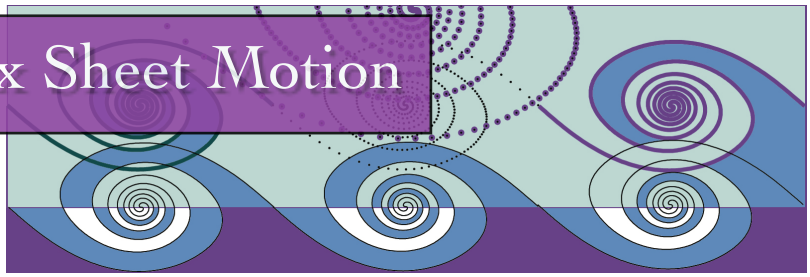
Third European SCAT Workshop & Summer School
in partnership with IRPHE and CNRS

Computing Vortex Sheet Motion



One of a series of mini-courses taking place 4-10 June 2007, Centre IGESA

Description

The course will present Lagrangian particle methods for computing vortex sheet motion. The point vortex method can be used to study the formation of a Moore singularity and the vortex blob method can be used to study spiral roll-up past the singularity time.

Results will be presented concerning chaos in vortex sheet flow and a Cartesian multipole treecode for fast summation. A panel/particle method for vortex sheets in 3D flow will be described.

Lecturer

Prof Robert Krasny, University of Michigan

Syllabus

- Vortex sheets in 2D flow
  - Lagrangian formulation, flow map, Birkhoff-Rott equation
  - Point vortex method, Fourier filter, Moore singularity
  - Vortex blob method, linear stability of regularized equations, roll-up
  - Chaos in planar and axisymmetric vortex sheet flow
- vortex sheets in 3D flow
  - Governing equation
  - Cartesian multipole treecode
  - Panel/particle method
  - Applications to vortex rings

For more information, email info@scat-alfa.eu or visit www.scat-alfa.eu

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