



Instability of a circular jet
by Robert E. Drubka and Hassan M. Nagib
in "Album of Fluid Motion", Milton Van Dyke

Topics in the Mathematical Analysis of **Vortex Dynamics**



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Date **Tuesday, October 7**
Tuesday, October 28
Monday, November 17
Tuesday, November 25
Thursday, December 11

Time **15:00-18:00**

Venue **Room 108, Faculty of Science Bldg. #3**
Kyoto University

After introducing the incompressible fluid equations, we present the following topics in the mathematical analysis of vortex dynamics,

- (1) asymptotic analysis of singularity formation in an evolving vortex sheet (Moore 1979),
- (2) dynamical systems analysis of transport, mixing, and chaos in the flow of an oscillating vortex pair (Rom-Kedar, Leonard, and Wiggins 1990).

Since these lectures are intended for students with diverse backgrounds in math and science, we present some background material, warm-up examples, and experimental results to motivate the interest in vortex dynamics. We also discuss related computations using vortex particle methods.