ME221: **Advanced Viscous Flow**
Spring 2010
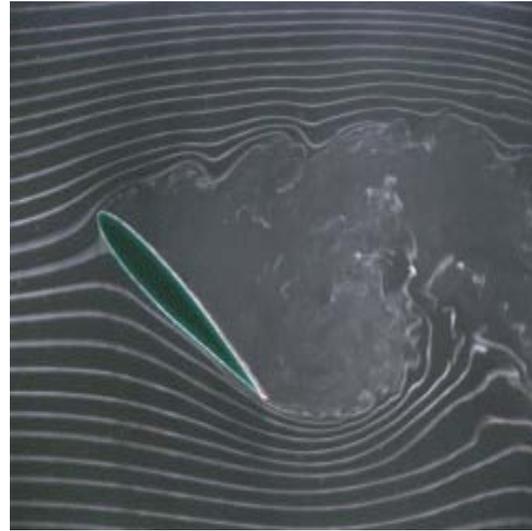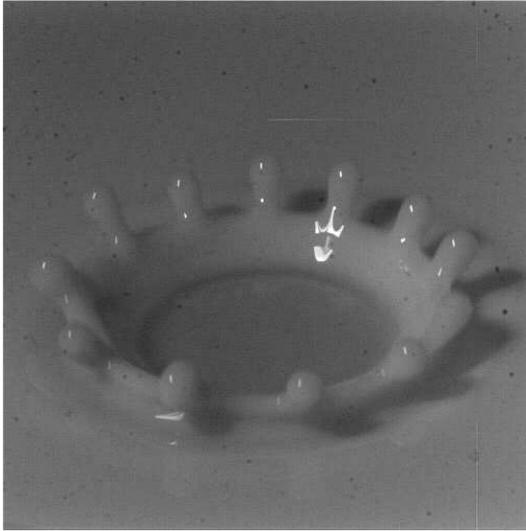
Course goals:

to develop a coherent picture of the fluid dynamics theory via physically motivated examples and to introduce students to both the classical as well as modern results

The topics to be covered:
- The Navier-Stokes equations in velocity and vorticity variables
- Important low and moderate Reynolds number flow applications
- High Reynolds number flows with boundary layers and turbulence
- Compressibility effects: shock waves and acoustics
- Comparison of exact, approximate, and experimental approaches

Suggested textbooks:
- R.L. Panton, *Incompressible flow*, Wiley 1984
- G.K. Batchelor, *An introduction to fluid mechanics*, Cambridge 1967
- L.D. Landau and E.M. Lifshitz, *Fluid mechanics*, Pergamon Press 1987

Instructor: Prof. Rouslan Krechetnikov, Engineering II 2332
Lectures: M W 11:00-12:15 at Engineering II 2243
Office hours: M 12:30-2:30 pm or by appointment