Today:
- Feedback
- Finish Spatial Resolution (previous notes)
- Time Resolution

Dye techniques

Time Resolution

First, calculate motion blur. If unacceptable, increase time resolution = shorter exposure time

1) Increase shutter speed
   a. Max is 1/10,000? 0.1 msec, 100 μsec? At best.
   b. High speed camera 30,000 fps ~ 3 x 10^{-5} sec = 30 μsec

2) Freeze the flow with short light source (won’t work for light emitting fluids, i.e. flames)
   a. Strobe, camera flash ~ 10^{-5} or -6 sec = 1-10 μsec
   b. Pulsed laser 3x10^{-9} sec = 3 nsec or less

SPECIFIC FV Techniques

Choice depends on physics desired

I. DYES
   II. Aerosols / Particles

I. Dye
   1) Want dye to NOT disturb flow
   2) Want dye to show up - HIGH VISIBILITY
   3) Special techniques

1) NOT Disturb flow - HOW?
   Minute paper - Groups