

AA200A Homework 3 2014 -2015

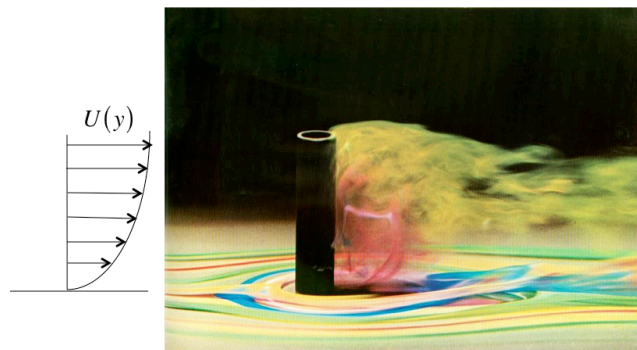
Due Thursday April 23

Review: Chapters 3 and 4

Read: Chapter 5

Chapter 5 - Problems 7 and 8 and

Problem - The image below by Werle shows a visualization of the flow around a circular cylinder attached to a wall in a water channel. The flow is visualized using dye of several colors introduced very close to the wall. This experiment models the effect of tall buildings on the spread of ground contaminants in cities. The atmospheric boundary layer in which the buildings are embedded is on the order of the building height.



Use reasonable assumptions to determine the dependence of pressure on height along the back of the cylinder. Can you explain the mechanism by which dye is drawn upward from the wall in the near wake of the cylinder?