

## Project II

Presentation: Thursday, May 3rd (10 minutes)

Report due: Friday, May 11th

(Total 35 pts: work, 25 pts; presentation, 5 pts; report, 5 pts.)

1. Numerical simulation of incompressible flows using staggered grid

- Suggested flow: driven cavity
- Suggested methods: MAC, projection methods
- Minimum discussion: mesh size, Reynolds number
- Suggested extra work (bonus): different cavity shape, high Reynolds number, parallel computing
- References:
  - C. A. J. Fletcher, Computational Techniques for Fluid Dynamics, Volume II, Second edition, Springer, 1991
  - Kim, J., and Moin, P., “Application of a Fractional-Step Method to Incompressible Navier-Stokes Equations”, Journal of Computational Physics, vol. 59, 308–323 (1985)
  - D. L. Brown, R. Cortez, and M. L. Minion, “Accurate projection methods for the incompressible Navier-Stokes Equations”, Journal of Computational Physics, vol. 168, 464–499 (2001)

2. Open to other research related topics (require discussion with the thesis advisor and Dr. Wei)