

**Finite-Volume Method: Laplacian**

## Homework 5

**Handed out: October 22****Due in: October 31**

Use the 20x20 and 40x40 unstructured grids that you were given for homework 4. For each problem below, investigate the number of iterations that are required to fully account for the correction to the discrete Laplace operator. Choose your own preferred method to calculate the gradient for the non-orthogonal correction (please specify what you chose). Use the standard `laplacianFoam` solver.

- (1) Solve the Laplacian Dirichlet problem that you solved in homework 3. Compare the results on each unstructured grid with those from the solver you wrote in homework 3. Compare for similar number of unknowns (grid size). Comment on how you compare the different grids (unstructured versus structured).
- (2) Solve the Neumann problem that you solved in homework 3. Compare the results on each unstructured grid with those from the solver you wrote in homework 3. Compare for similar number of unknowns.