

# Aerospace Computing

## Assignment 8

Due: 3/22/24

This particular problem is considered rather difficult by students, I strongly suggest you start it early and utilize the lagniappe video that explains the process.

For text Problem Set 2.3 problem 19 – **Warning there is an error in the problem description of the b vector, you need to take the opposite of each number, i.e. -100, -200, etc., if you choose to use the books description of the problem. However, flip the problem so that the 0 degree sides are the top and right, and the 100 degree side is the left.**

Note: you may also choose to use my description of the matrix that includes the “known” edge values.

- a. Solve the problem as described.
- b. Visualize the solution using the matplotlib functions.
- c. Drastically expand the problem using a 40x40 mesh in  $(x,y)$  space.
  - i. Visual the solution on both meshes.
  - ii. Compare the performance of the CG method on each and assess the order of operations.