Prof. Ming Gu, 861 Evans, tel: 2-3145
Office Hours: TuWTh 12:00-1:30PM
Email: mgu@math.berkeley.edu
http://www.math.berkeley.edu/∼mgu/MA2212008F

Math221: Matrix Computations
Homework #6, Due Oct. 13, 2008

- Problems 3.1, 3.3, 3.4, 3.5, 3.6, 3.8, 3.15.
- Show that Problem 3.10 is wrong by providing a counter example.
- Write a matlab code to generate random matrices of the form
  `A = randn(m,n) * diag(scl.^(1:n))*randn(n,n),`
  where `scl` is a scalar between 0 and 1. Choose scl, m, and n so that the above matrix ranges from well-conditioned to very ill-conditioned. Download the classical Gram-Schmidt amd modified Gram-Schmidt programs from the class website and run them on these matrices. Compare the redidual $\|A - Q \cdot R\|_2 / \|A\|_2$ as well as $\|Q^T \cdot Q - I\|_2$ between these methods.
- Download the unstable Householder reflection code from the class website and numerically demonstrate its instability.