

**ECEn 563**  
**Computational Electromagnetics**

Homework #13

Due Nov. 2, 2009 at the beginning of class (may be turned in after class for half credit)

1. For the volume MOM with a cylinder of radius  $\lambda/2$  and  $\epsilon_r = 2$ , replace the matlab slash operator with the Jacobi iteration. Does it converge? Next, try the Gauss-Seidel iteration. Plot on a semilogy scale the relative residual error norm

$$\text{relerr}_k = \frac{\|Ax_k - b\|}{\|b\|}$$

versus the iteration count  $k$  for both iterations.

2. Raise the relative permittivity of the cylinder to 10. Repeat the Jacobi and Gauss-Seidel iterative solutions.