Set #13

Due Wednesday December 9, 2009

Problems (from Dr. Song):
1. Pozar, p. 439 problem 8.17. ADS portion see below.

Computer Oriented Problems (from Dr. Wickert):
3. Check/validate Pozar 8.17 in ADS. The basis for this design in ADS is the SmartComponent SIFilter. Plot both $S_{11}$ and $S_{21}$ in dB for the stepped impedance filter on FR4 and also a corresponding lumped element filter obtained using the Filter Design Guide. As a third comparison, use ideal line TLIN to design an ideal distributed element version of this filter. You will need the line impedance values and line electrical lengths from the working of Pozar 8.17.
4. Check/validate Pozar 8.19 in ADS. The basis for this design in ADS is the SmartComponent CLFilter. Plot both $S_{11}$ and $S_{21}$ in dB for the stepped impedance filter on FR4 and also a corresponding lumped element filter obtained using the Filter Design Guide. As a third comparison, use ideal coupled line CLIN sections to design an ideal lumped element version of this filter. You will need the $Z_{0o}$ and $Z_{0e}$ values from the actual working of Pozar 8.19.