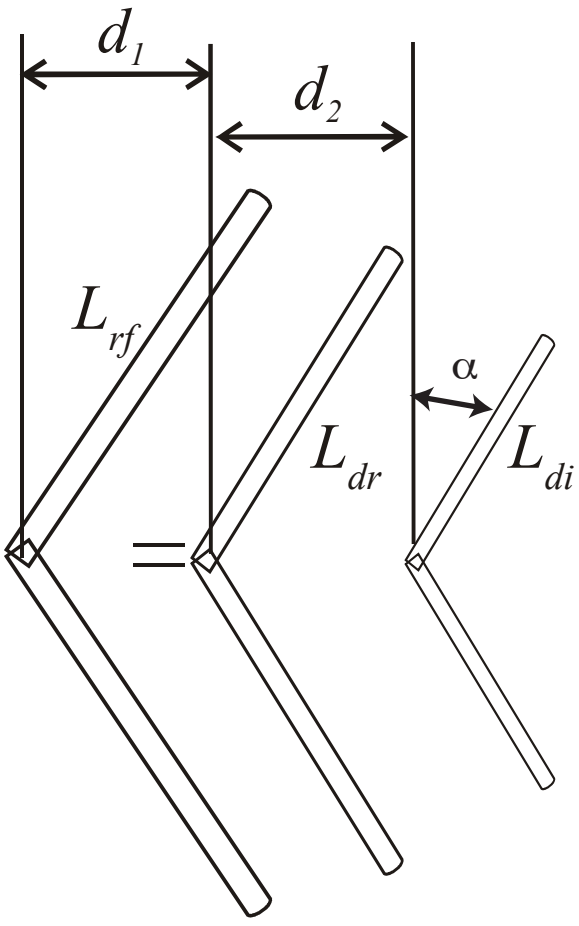
Homework 6: ECE 4370

Numerical Electromagnetics

Work through the NEC half-wave dipole tutorial on the class website (ungraded).

Simulate a 3-element V-dipole Yagi-Uda array antenna on the computer using NEC, with the final intent to maximize peak gain. You are only allowed one driver, one director, and one reflector. The antenna impedance must be purely real at the desired center frequency of 1 GHz. Be sure to include your final dimensions, your NEC input file, azimuth and elevation gain patterns, an estimate of bandwidth and front-to-back ratio at 1 GHz. Note that widths of wires must be at least 1.0 mm and no element may be closer than 0.05λ to another.

The following six dimensions are available for you to optimize.



Bonuses for any student who achieves the top peak gain along the horizontal axis.