Homework 4: ECE 4370

Numerical Electromagnetics

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

Simulate a 3-element Yagi-Uda array antenna on the computer using NEC, with the final intent to maximize Front-to-Back ratio. 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 0.1λ to another.
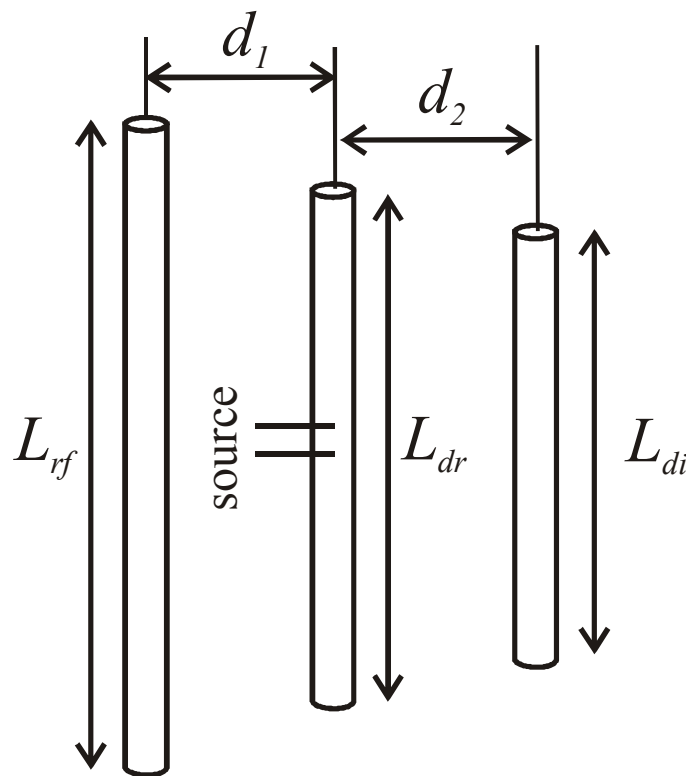
Note that a portion of your score on this assignment will be competitive. Students who did not follow directions or failed to achieve a valid design will be ranked last; the remaining students will be rank-ordered based on FBR with the highest receiving the top base score on the assignment.