Dr. Nader Farahat

Undergraduate Research

Fall Quarter 2004

Arecibo Observatory

Reflector Antennas

Reflector antennas are widely used in a variety of applications including communication, radar and astronomy. Computer modeling of these antennas is highly desired in order to predict their radiation performance. In this research group we will develop computational tools (programs in Fortran, C and Visual Basic) necessary for studying the entire antenna system from the electromagnetics standpoint. We will then address the practical issues arising in the application of these antennas such as depolarization and gain loss due to the blockage of the support system and sub- reflector, deterioration of the reflector surface due to the gravity and its effects on the pattern etc. (Preference will be given to students with higher GPA)

The candidates applying for this research group should have one or various of the following requisites (1 to 4):

1) Electromagnetics Course
2) Numerical Analysis Course
3) Very Good Visual Basic Programming Skills (Gui Development)
4) Very Good C Programming (Program Core Development)

(A combination of 2 and 4 is desirable for the scientific programming part of the project)