## Fields and Waves I – Fall 2000 Project 1 - Electroscope Due November 2, 2000 6:00PM

You may work in groups of up to 3 people. We require one report and at least one working model for each group. This is an "open ended" project in the sense that the construction of the electroscope is rather straight forward. We will give most credit for doing something creative with it and showing that you understand the principles of electric fields. The internet is full of electroscope designs and experiments that you can use for a start. We would like to see clear demonstrations of the basic principles. The more quantitative the better. That is, if you can get numbers for say charge or capacitance or dielectric constants, this will improve the project. For example, by measuring the time to discharge the foils, (if you know the capacitance) you can calculate the resistance to ground. Finding the capacitance will be an interesting exercise. Also you might consider different methods of charging the scope. Placing dielectric bodies between the foils will change the force, etc. The grading will be based on the following criterion.

## Grading

Construction and demonstration to staff of the electroscope	20
Creative experiments with the device	15
Analysis of the results and reporting	15

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