

## **Advice for those beginning a COMSOL simulation**

### **Simulation is a way of answering questions**

Formulate the question before starting. Do you want to predict a radiation pattern? Do you want an input impedance? Do you want to know the effect of varying a small number of parameters? Which parameters anyway?

### **Find a related example**

COMSOL ships with a number of fully worked examples. Also on the COMSOL website: Model Exchange, COMSOL Blog, Papers and Presentations.

### **Run the example**

Solve. Use the postprocessing nodes to look at the solution. Plot the results different ways- 2D, 3D, along lines, etc.

### **Build the entire model and run it again**

This will help you learn how to add nodes and where things are located in the Settings. Some features require several steps, not always in logical order (perfectly matched layers, for example).

### **Review boundary conditions**

Be sure you understand the important boundary conditions. If necessary consult your textbooks.

### **Solve a simple problem where you know the answer**

Choose a simple geometry- a cube or a slab with simple applied voltages or stresses. Plot the results and satisfy yourself that they agree with expectations. (Sometimes you need to correct your expectations!) Check against first-order equations (for capacitance, strain, etc. etc.).

### **Finally try to solve the problem of interest**

If you think this advice is indirect and a waste of time- it's not.