

I. Installation

- Create a COMSOL account using your Aalto email: <https://www.comsol.fi/access/login>
- Use your account to download and install COMSOL 5.5 from: <https://www.comsol.fi/product-download/5.5>

II. Open, Explore Results

- Open COMSOL and load the "Helmholtz_Resonator_Model" model contained in this assignment package.
- Under the **Model Builder** window, go to **Results** → **Frequency sweeps - logarithmic scale**
- Looking at the plot on the **Graphics** window:
 - What would you say is the fundamental frequency of the resonator?
 - What is the approximate magnitude of this frequency?
- Now change the width of the opening of the resonator. Under the **Model Builder** window, go to **Global definitions** → **Parameters**. Under **Settings** window change the parameter a (Tube radius) from 0.01[m] to 0.04[m].
- Run the simulation again and compare results. Under the **Model Builder** window, go to **Study 1 - Frequency sweep**. Press *Compute* under the **Settings** window and wait for the simulation to run.
- Go back to the plotting section.
- Looking at the new plot on the **Graphics** window:
 - What happen to the response of the resonator and its fundamental frequency?
 - Why? (2 extra points)

III. Snapshot & Submit

- Take a snapshot of the new plot using the **Image Snapshot** under the **Graphics** window and save it in JPG format on your computer.
- Name your image 'COMSOL Assignment 1 - Your Student ID#'
- Submit your answers and image in the Assignment 1 section of MyCourses.