BRUFACE **Vibration and Acoustics**
MA1 Mechanical Engineering **Academic year 2021-2022**

Jonathan Jacqmot (jonathan.jacqmot@hexagon.com)

Session 5: Acoustic Finite Element Simulation

Exercise 1:

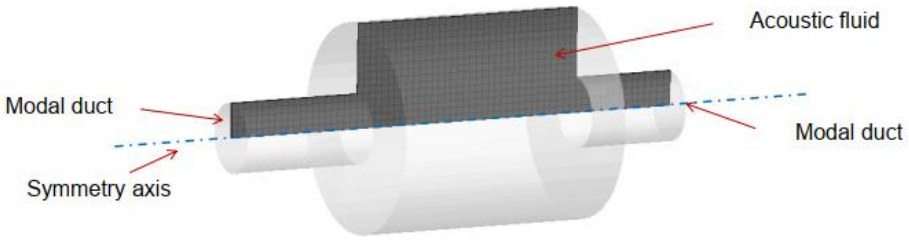
Perform the modal extraction of a cavity full of air (0.75m x 0.4m x 0.65m) as specified in the workshop: TP5_Cavity_modal_extraction.pdf.

Observe natural frequencies and mode shapes of the cavity.

Exercise 2:

Perform the axi-symmetric simulation of a muffler. All the instructions are detailed in the workshop: TP5_Muffler_transmission_loss.pdf

Observe and comment the difference between the finite element simulation results and the analytical solutions provided. Plot a few maps at different frequencies to elaborate your explanations.



Going further

- How would evolve the transmission loss curve with an elevation of the temperature of 100°C ?
  Hint: the material properties need to be adapted