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reviewer1@nptel.iitm.ac.in ▼

Courses » Acoustic and Noise Control

 Announcements **Course** Ask a Question Progress Mentor

Due on 2017-09-18, 23:59 IST

Consider a semi infinite duct of width $2L$ driven by a flexible piston oscillating as shown in the figure. The spatial vibration of the piston is given by

$$u(x) = U_0 \cos\left(\frac{\pi y}{2L}\right)$$

Animate the cut-on wave when

1. Excitation frequency is greater than the cut-on frequency
2. Excitation frequency is lesser than the cut-on frequency

Parameters:

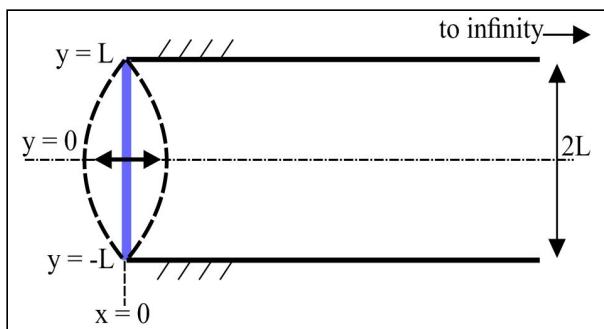
1. $L=1$ m
2. $U_0=0.8$
3. $c=340$ m/s
4. $\rho=1.2$ kg/m³
5. Excitation frequency = k * cut-on frequency

where 'k' is some constant greater than 0.

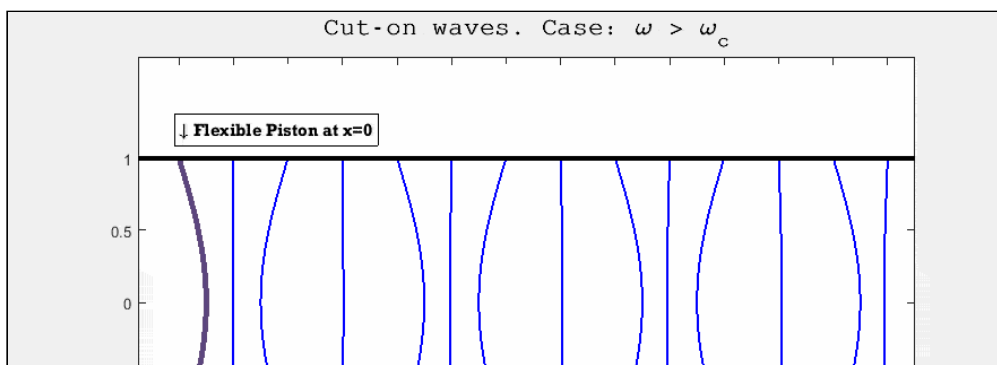
Hints:

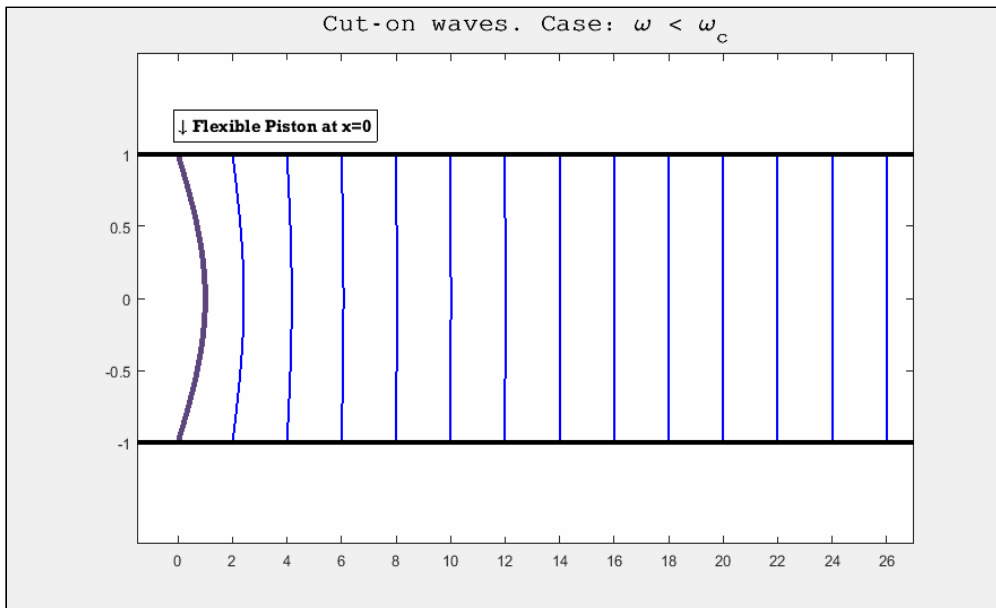
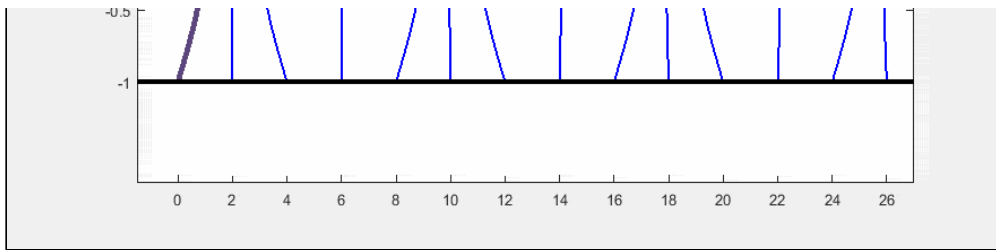
1. Plot $\text{real}(u(x) \exp(i\omega t))$
2. Generate the profile at select cross sections, for example $x=\text{linspace}(0,G,16)$.

G: Length of the duct (assumed 30 in the animation)



Following are the expected animation files





Your Submission:

Due Date Exceeded.
As per our records you have not submitted this assignment.

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