Recap

- Requirements of locality, uniformity and isotropy, lead to generic descriptions of long-wave length and small amplitude displacements that depend on the combination of second derivatives known as the Laplacian, which in Cartesian coordinates has the form

$$\nabla^2 h = \sum_{i=1}^{d} \frac{\partial^2 h}{\partial {x_i}^2} \equiv \partial_i \partial_i h \text{ using the summation convention.} \tag{3.4.32}$$

- In two dimensions, the radial part of the Laplacian takes the form

$$\nabla^2 h = \frac{1}{r} \frac{\partial}{\partial r} \left(r \frac{\partial h}{\partial r} \right) = \frac{\partial^2 h}{\partial r^2} \,. \tag{3.4.33}$$

- Normal modes of a circular drum involve Bessel functions.