



Figure 1:

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Continuum Mechanics
Home assignment number 2, 2008
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a) Consider the displacement field

$$\begin{aligned}u_1 &= a \sin(kx), \\u_2 &= u_3 = 0.\end{aligned}$$

Find the linear strain tensor, its eigenvalues and eigenvectors and the infinitesimal rotation vector. Sketch the displacement field, the linear strain tensor and the infinitesimal rotation vector.

b) The same question for the displacement field

$$\begin{aligned}u_2 &= a \sin(kx), \\u_1 &= u_3 = 0.\end{aligned}$$

They are the displacement fields of a longitudinal and a transverse wave at a particular moment.