

Compute $X(x_c)$

1st approx:

$$X(x_c) = \frac{\nu_0 - \nu_z^0}{\pi \nu_0} 2l$$

$$\text{Set } X(x_c) = \pm \frac{h}{2} \Rightarrow$$

$$\pm \frac{h}{2} = \frac{\nu_0 - \nu_z^0}{\pi \nu_0} 2l$$

$$\Rightarrow \nu_0 - \nu_z^0 = \pm \nu_0 \frac{\pi h}{4l}$$

$$\therefore \boxed{\delta \nu = \nu_0 \frac{\pi h}{4l}}$$

Note that this gives maximum dependence on ν_z^0 which is what we want.

Also, 2nd approximation for x_c not actually needed.