

# Beats

- Can we predict this pattern mathematically?  
→ Of course!
- Just add two cosines and remember the identity:

$$A \cos(\omega_1 t) + A \cos(\omega_2 t) = 2A \cos(\omega_L t) \cos(\omega_H t)$$

where  $\omega_L = \frac{1}{2}(\omega_1 - \omega_2)$  and  $\omega_H = \frac{1}{2}(\omega_1 + \omega_2)$

