

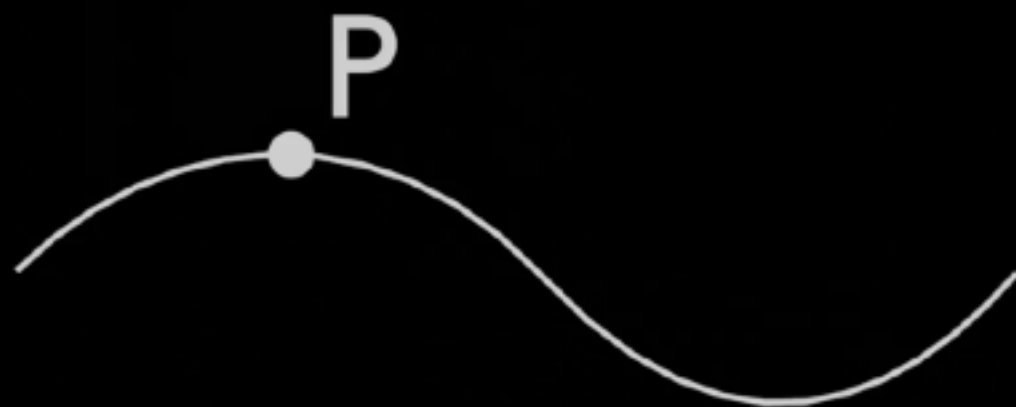


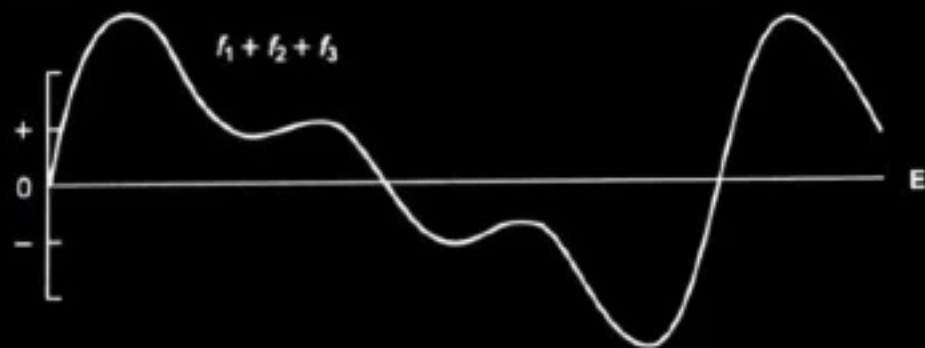
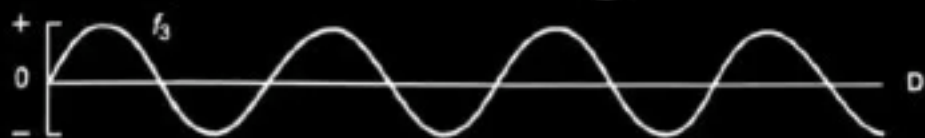
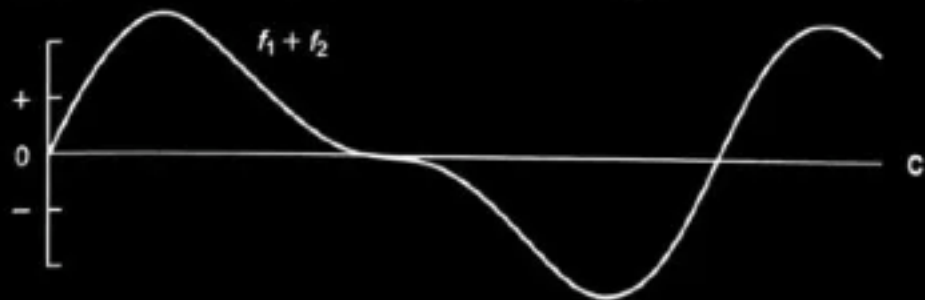
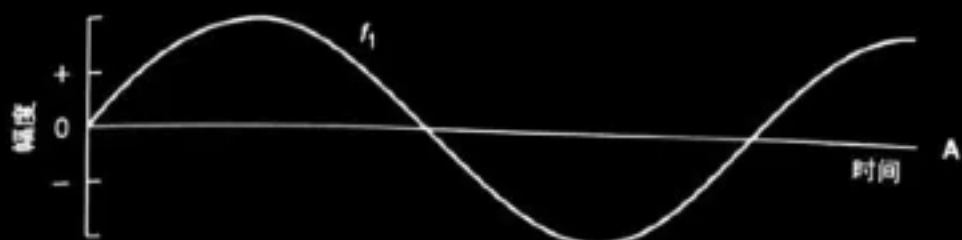


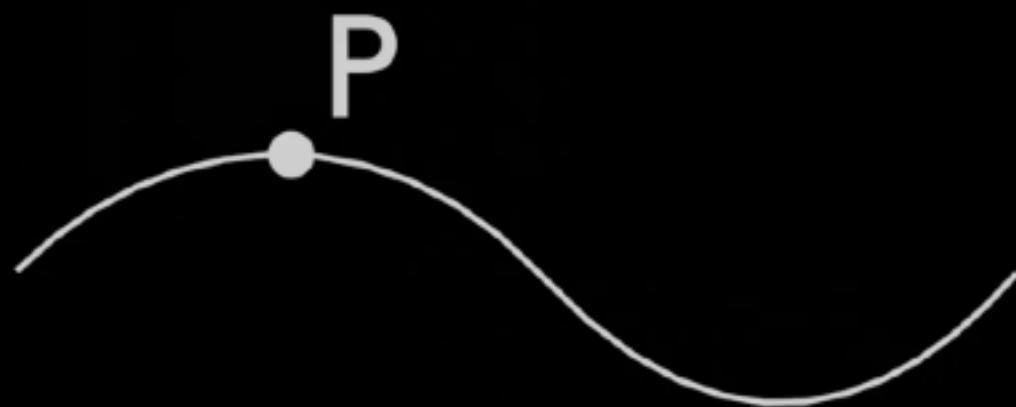




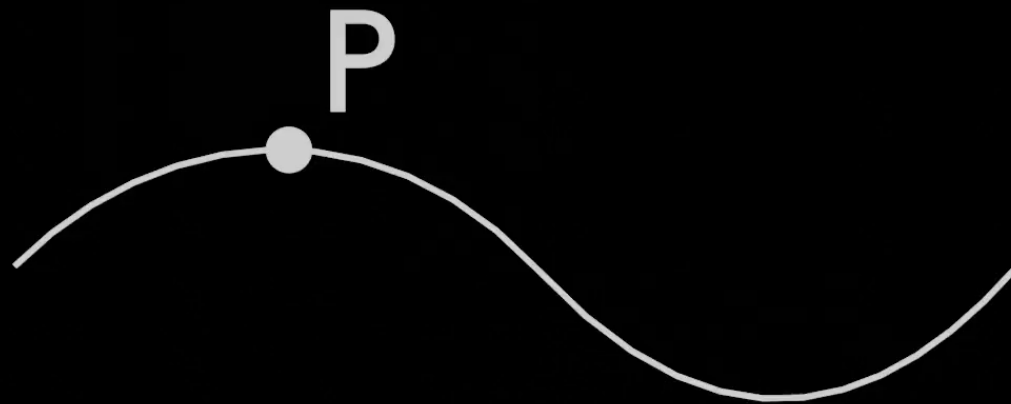
$$\frac{ds_p}{dt} = -\frac{d^2s_p}{dt^2}$$







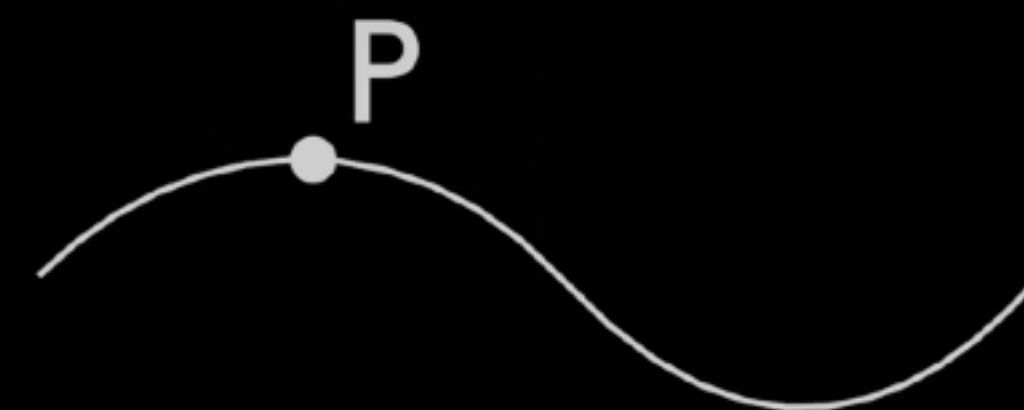
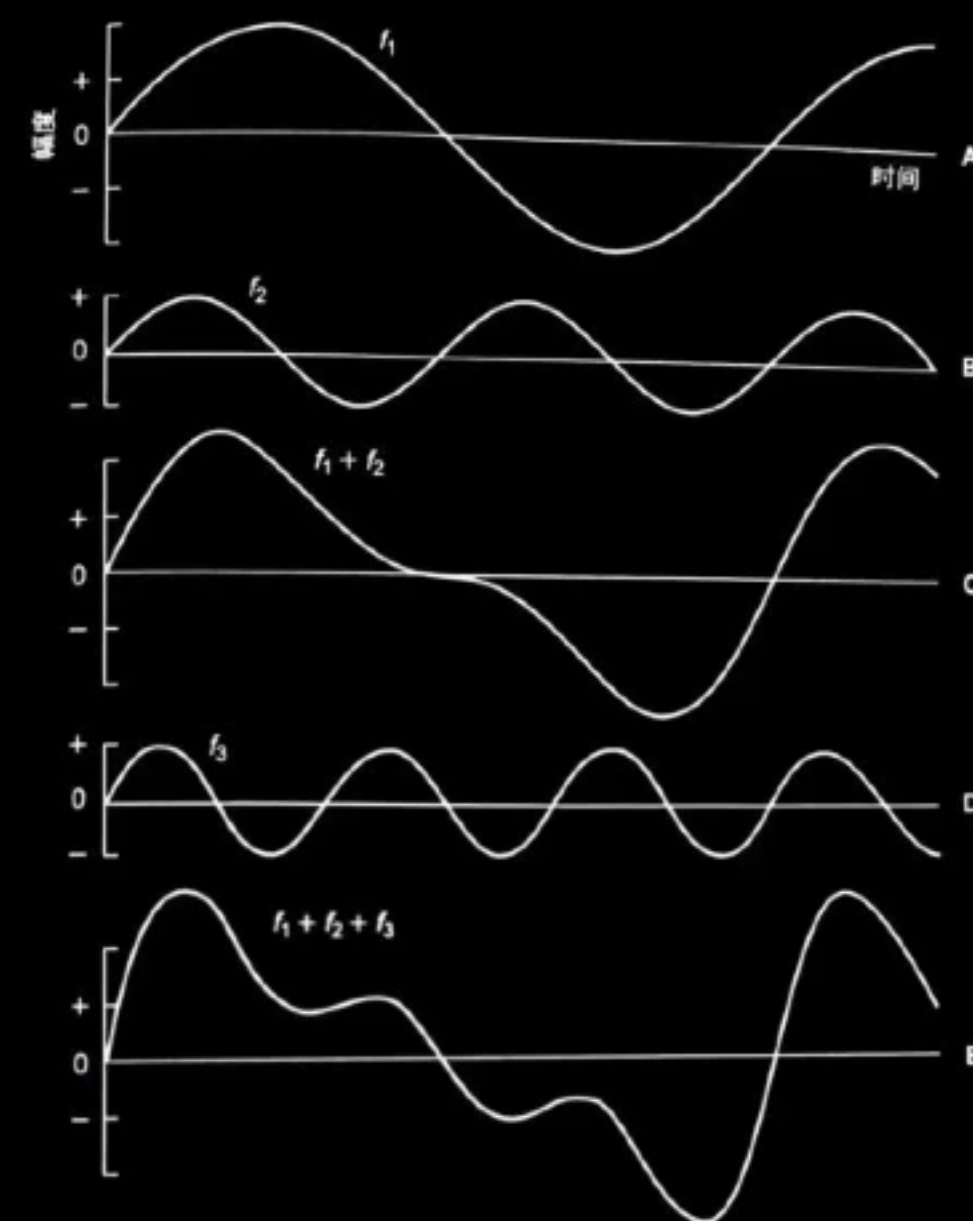




# 不同种类的乐音

## 泛音

- 乐器的发声都是由泛音构成的
- 泛音是由基波变化而成的
- 泛音决定音色（但不决定音高！！！）
- 传统乐器发声产生的是驻波，做简谐运动
- 小字一组a频率为440hz，波长78m



$$\frac{ds_p}{dt} = -\frac{d^2s_p}{dt^2}$$



# 音的组合