

Dados

$$1 \times 10^{-9} \text{ m} = 1 \text{ nm} \quad \blacklozenge \quad v^{\text{luz}} = c = 3,0 \times 10^8 \text{ m/s}$$

$$\text{Aproximação: } f = f_0(v^{\text{onda}} + v^{\text{obs}})/(v^{\text{onda}} - v^{\text{obs}}) \quad \blacklozenge \quad \text{Afastamento: } f = f_0(v^{\text{onda}} - v^{\text{obs}})/(v^{\text{onda}} + v^{\text{obs}})$$

$$D(r,t) = 2A \cos(\Delta\Phi/2) \sin(kr - \omega t); \Delta\Phi = k\Delta r + \Delta\Phi_0$$

$$d \sin(\theta_m) = m \lambda; m = 0, 1, 2, \dots \quad \blacklozenge \quad a \sin(\theta_p) = p \lambda; p = 1, 2, 3, \dots \quad \blacklozenge \quad \Delta m = 2\Delta L/\lambda; m = 0, 1, 2, \dots \quad \blacklozenge \quad \theta_1 = 1,22 \lambda/D$$

$$n_1 \sin(\theta_1) = n_2 \sin(\theta_2) \quad \blacklozenge \quad 1/f = 1/s + 1/s' = (n-1)(1/R_1 - 1/R_2)$$

$$\text{Tubo aberto-aberto: } L = m \lambda/2; m = 1, 2, 3, \dots; \text{Tubo aberto-fechado: } L = n \lambda/4; n = 1, 3, 5, \dots$$

Cartão Resposta

Nome			
Matricula		Prof.:	

A B C D E	A B C D E
1 ○ ○ ○ ○ ○	11 ○ ○ ○ ○ ○
2 ○ ○ ○ ○ ○	12 ○ ○ ○ ○ ○
3 ○ ○ ○ ○ ○	13 ○ ○ ○ ○ ○
4 ○ ○ ○ ○ ○	14 ○ ○ ○ ○ ○
5 ○ ○ ○ ○ ○	15 ○ ○ ○ ○ ○
6 ○ ○ ○ ○ ○	16 ○ ○ ○ ○ ○
7 ○ ○ ○ ○ ○	17 ○ ○ ○ ○ ○
8 ○ ○ ○ ○ ○	18 ○ ○ ○ ○ ○
9 ○ ○ ○ ○ ○	19 ○ ○ ○ ○ ○
10 ○ ○ ○ ○ ○	20 ○ ○ ○ ○ ○