

### Esercizio 3.06.

$$A = \pi \frac{l^2}{4} - \pi \frac{d^2 l^2}{4} = \pi \frac{l^2}{4} (1 - d^2)$$

$$W_{xx} = W_{yy} = \frac{\pi l^3}{32} (1 - d^4)$$

$$W_P = \frac{\pi l^3}{16} (1 - d^4)$$

• momento flettente

$$\rightarrow \sigma_{fA} = 0$$

$$M_{fA-A} = q \cdot \beta l \cdot \lambda l \quad \rightarrow \quad \sigma_{fB} = + \frac{q \beta l \cdot \lambda l}{W_{yy}} \quad (\text{positivo perché trattivo})$$

$$\rightarrow \sigma_{fC} = 0$$

• taglio

$$T_{A-A} = q \cdot \beta l$$

$$T_{TA} = \frac{q \cdot \beta l}{A} \cdot \frac{4}{3} \left( 1 + \frac{1}{\frac{1}{d} + d} \right)$$

$$T_{TB} = 0$$

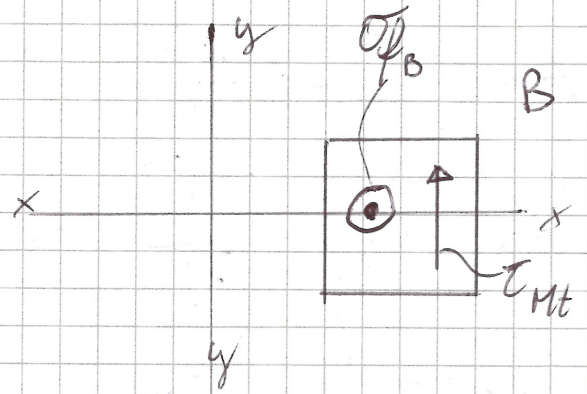
$$T_{TC} = \frac{q \cdot l \cdot \beta}{A} \cdot \frac{4}{3} \left( 1 + \frac{1}{\frac{1}{d} + d} \right)$$

• momento torcente

$$M_{tA-A} = q \cdot \beta l \cdot \left( l - \frac{\beta l}{2} \right) \quad T_{MtA} = T_{MtB} = T_{MtC} = \frac{q \cdot \beta l \cdot \left( l - \frac{\beta l}{2} \right)}{W_P}$$

• tensioni principali in B.

$$\sigma_{1-2B} = \frac{\sigma_{\perp B}}{2} \pm \sqrt{\frac{\sigma_{\perp B}^2}{4} + (\tau_{MtB})^2}$$



• tensioni principali in C.

$$\sigma_{1-2C} = 0 \pm \sqrt{0 + (\tau_T - \tau_{Mt})^2}$$

