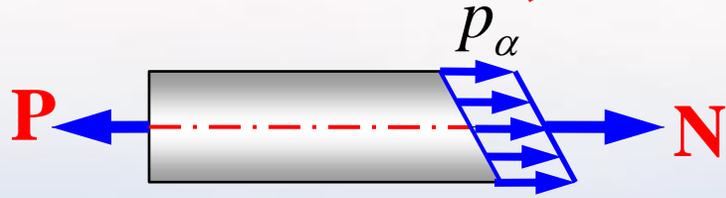
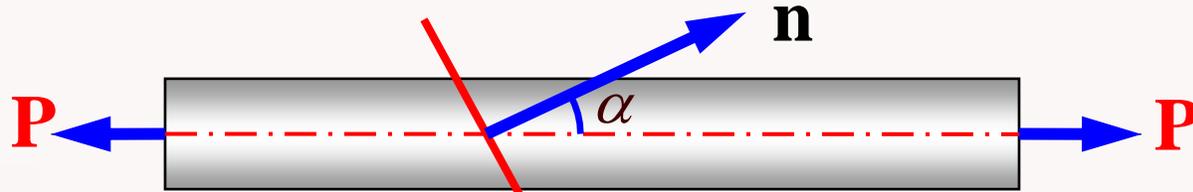


斜截面上的应力

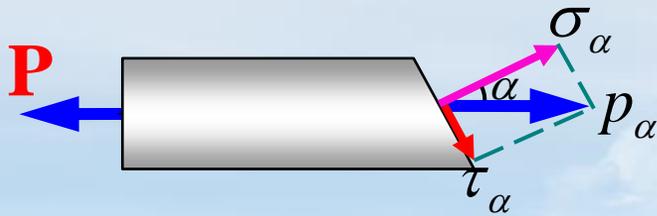


斜截面上的应力

三、轴向拉、压时杆斜截面上的应力



$$p_{\alpha} = \frac{N}{A / \cos \alpha} = \frac{N}{A} \cos \alpha = \sigma \cos \alpha$$



$$\sigma_{\alpha} = p_{\alpha} \cdot \cos \alpha = \sigma \cos^2 \alpha$$

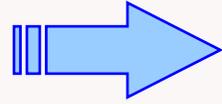
$$\tau_{\alpha} = p_{\alpha} \sin \alpha = \sigma \cos \alpha \sin \alpha$$

$$= \frac{\sigma}{2} \sin 2\alpha$$



斜截面上的应力

$$\begin{cases} \sigma_{\alpha} = \sigma \cos^2 \alpha \\ \tau_{\alpha} = \frac{\sigma}{2} \sin 2\alpha \end{cases}$$



◇当 $\alpha = 0$ 时, $\sigma_{\max} = \sigma$

◇当 $\alpha = \pm 45^{\circ}$ 时, $\tau_{\max} = \sigma/2$

◇当 $\alpha = 90^{\circ}$ 时, $\sigma = \tau = 0$

