

NTU50235100

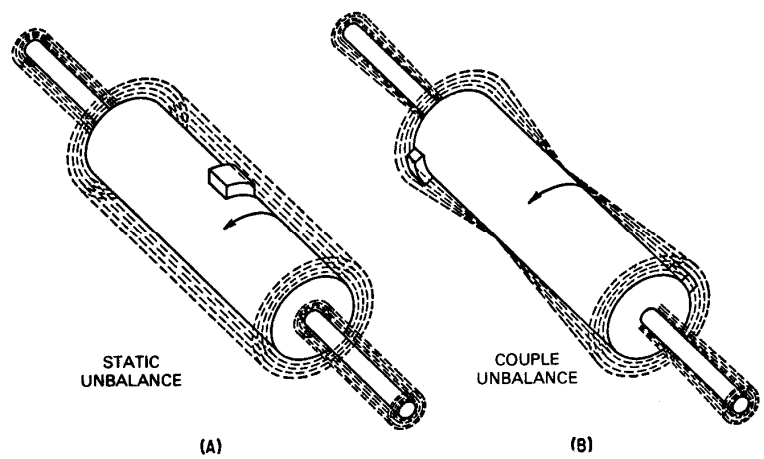
# Balance of Rotors



周元昉

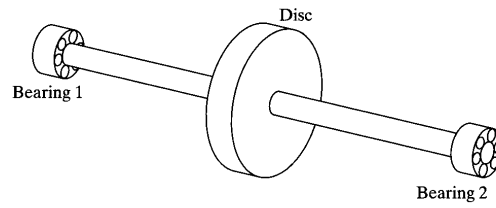
NTU50235100

## Static balancing

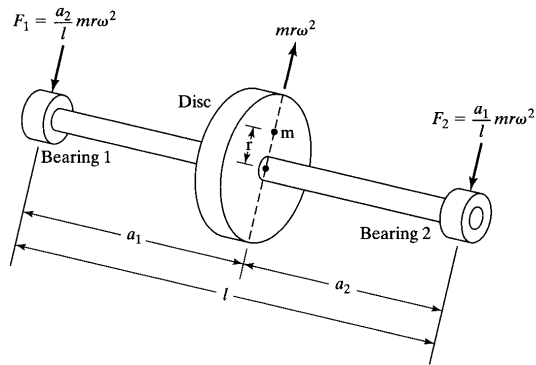


周元昉

NTU50235100



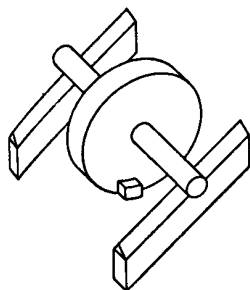
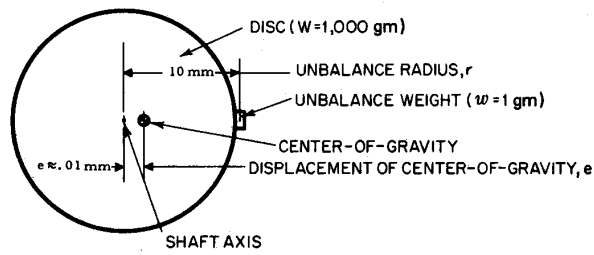
(a)



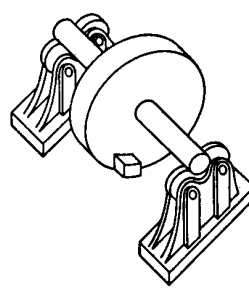
(b)

周元明

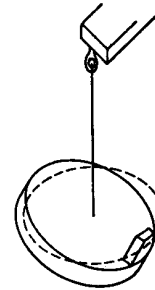
NTU50235100



(A) HORIZONTAL WAYS



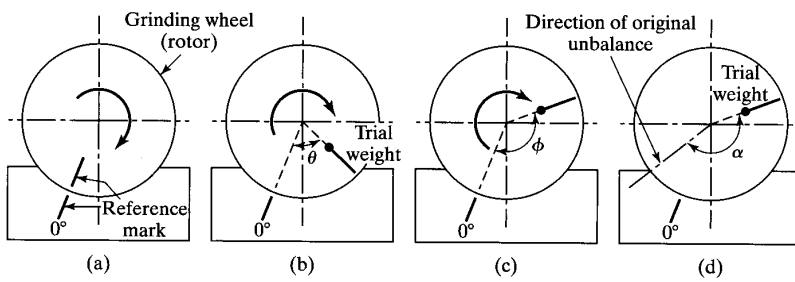
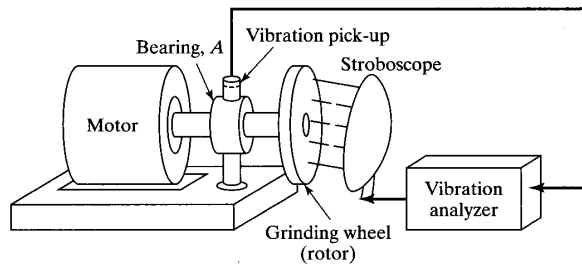
(B) ROLLER



(C) PENDULUM

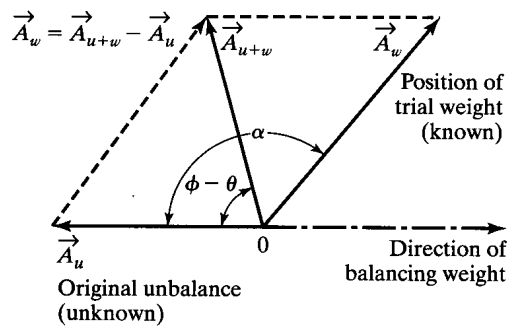
周元明

NTU50235100



周元明

NTU50235100

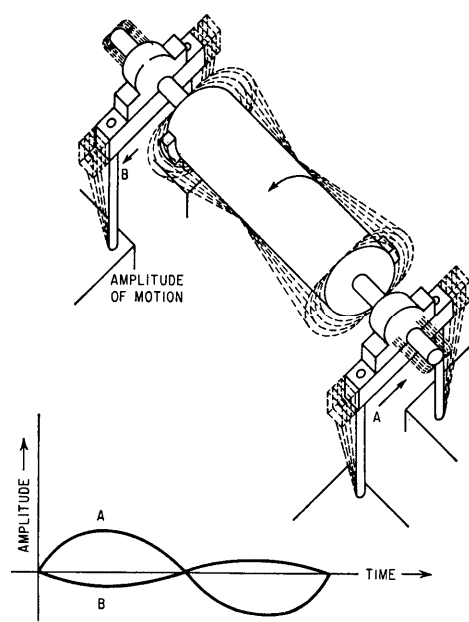


Find  $\vec{A}_w$  and  $\alpha$

周元明

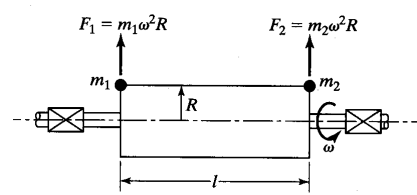
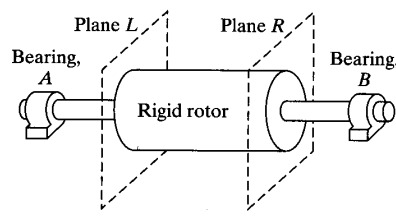
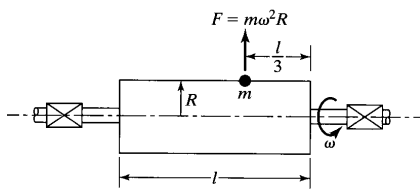
NTU50235100

Dynamic balancing



周元明

NTU50235100

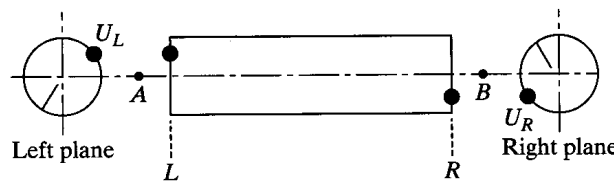


周元明

NTU50235100

$$\vec{V}_A = \vec{A}_{AL} \vec{U}_L + \vec{A}_{AR} \vec{U}_R$$

$$\vec{V}_B = \vec{A}_{BL} \vec{U}_L + \vec{A}_{BR} \vec{U}_R$$



$$\vec{V}'_A = \vec{A}_{AL}(\vec{U}_L + \vec{W}_L) + \vec{A}_{AR} \vec{U}_R$$

$$\vec{V}''_A = \vec{A}_{AL} \vec{U}_L + \vec{A}_{AR}(\vec{U}_R + \vec{W}_R)$$

$$\vec{V}'_B = \vec{A}_{BL}(\vec{U}_L + \vec{W}_L) + \vec{A}_{BR} \vec{U}_R$$

$$\vec{V}''_B = \vec{A}_{BL} \vec{U}_L + \vec{A}_{BR}(\vec{U}_R + \vec{W}_R)$$

Find

$$\vec{A}_{AL} = \frac{\vec{V}'_A - \vec{V}_A}{\vec{W}_L}, \quad \vec{A}_{BL} = \frac{\vec{V}'_B - \vec{V}_B}{\vec{W}_L}, \quad \vec{A}_{AR} = \frac{\vec{V}''_A - \vec{V}_A}{\vec{W}_R}, \quad \vec{A}_{BR} = \frac{\vec{V}''_B - \vec{V}_B}{\vec{W}_R}$$

周元昉

NTU50235100

$$\vec{U}_L = \frac{\vec{A}_{BR} \vec{V}_A - \vec{A}_{AR} \vec{V}_B}{\vec{A}_{BR} \vec{A}_{AL} - \vec{A}_{AR} \vec{A}_{BL}}$$

$$\vec{U}_R = \frac{\vec{A}_{BL} \vec{V}_A - \vec{A}_{AL} \vec{V}_B}{\vec{A}_{BL} \vec{A}_{AR} - \vec{A}_{AL} \vec{A}_{BR}}$$

周元昉