

$$\vec{\omega} \times \vec{r} = v_0 \omega \sin \theta \hat{e} - v_0 \sin \theta \hat{\rho}$$

$$\Rightarrow \vec{\omega} \times (\vec{\omega} \times \vec{r}) = -\frac{v_0}{R} \hat{\rho} \times (v_0 \omega \sin \theta \hat{e} - v_0 \sin \theta \hat{\rho})$$

$$= \frac{v_0^2}{R} \omega \sin \theta \hat{\rho} - \frac{v_0^2}{R} \sin \theta \hat{e}$$

gleichsetzen

$$-N \omega \sin \theta \hat{\rho} - N \sin \theta \hat{e} = F \sin \theta \hat{\rho} + F \omega \sin \theta \hat{e}$$

$$= -m R \omega^2 \hat{\rho} - \frac{m v_0^2}{R} \omega \sin \theta \hat{\rho} + \frac{m v_0^2}{R} \sin \theta \hat{e}$$

$$\hat{\rho}) N \omega \sin \theta + F \sin \theta = m R \omega^2 + m \frac{v_0^2}{R} \omega \sin \theta \quad (1)$$

$$\hat{e}) F \omega \sin \theta + N \sin \theta = -\frac{m v_0^2}{R} \sin \theta$$

$$(1) \cdot \sin \theta + 2 \omega \sin \theta$$

$$\Rightarrow F = m R \omega^2 \sin \theta$$

analogamente.

$$N = m \omega^2 R \cos \theta + \frac{m v_0^2}{R}$$