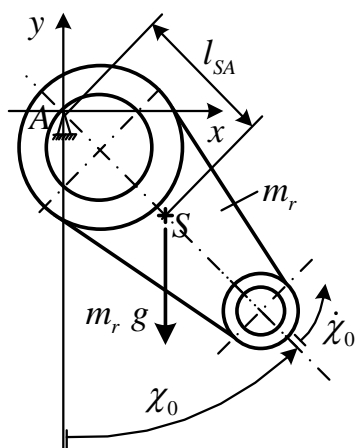


## Dynamics of Machines Week 3 – Exercise

### Connecting Rod – Physical Pendulum



$$J_{AZ} \ddot{\chi} = -l_{SA} m_r g \sin \chi$$

$$\ddot{\chi} = -\frac{l_{SA} m_r g}{J_{AZ}} \sin \chi \quad (\text{rad} / \text{s}^2) \quad \text{angular acceleration}$$

$$l_{SA} = 0,15 \text{ m} \quad J_{AZ} = 0,05 \text{ kgm}^2$$

$$m_r = 0,45 \text{ kg} \quad g = 10 \text{ m} / \text{s}^2$$

Initial Conditions :

$$\chi_0 = 0,3 \text{ rad} \quad \text{initial angle}$$

$$\dot{\chi}_0 = 0,5 \text{ rad} / \text{s} \quad \text{initial angular velocity}$$

