Mekanik MN2 - F13
Peter Ankerstål
26 November 2007

1 Lagrange Ekvationer

$$\frac{d}{dt}\frac{\partial T}{\partial \dot{q}_i} - \frac{\partial T}{\partial q_i} = Q_i \qquad i = 1, 2, 3...\phi$$

Q Generaliserad kraft
q_i Generaliserad koordinat
$\dot{q}_i$ Generaliserad hastighet

Konservativ om $Q_i = \frac{d}{dt}\partial U(q_1, q_2, \dot{q}_1, \dot{q}_2, ..., t) - \frac{\partial u}{\partial q_i}$

1.1 Konservativa system

$$\frac{d}{dt}\frac{\partial L}{\partial \dot{q}_i} - \frac{\partial L}{\partial q_i} = 0 \qquad i = 1, 2...\phi$$

Speciellt $\frac{\partial L}{\partial q_k} = 0$ för visst q_k sägs q_k vara en cyklisk koordinat

$$\frac{d}{dt}\frac{\partial L}{\partial \dot{q}_i} = 0 \Rightarrow \frac{\partial L}{\partial \dot{q}_i} = \left(\frac{\partial L}{\partial \dot{q}_i}\right)_{t=t_1}$$

$\frac{\partial L}{\partial \dot{q}_i}$ bevarad om q_k cyklisk.