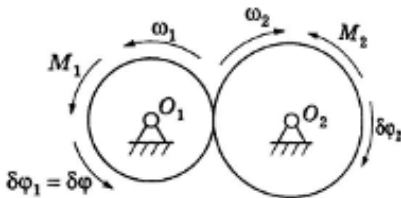# Theoretical Mechanics, Quiz 11: EULER LAGRANGE

Euler–Lagrange equation

Quiz 11

Rotation between two shafts is transmitted by two toothed wheels, the velocity of the second shaft through the first shaft is $\omega_2 = \frac{z_1}{z_2}\omega_1$. The moments of inertia of the shafts with wheels mounted on them are J_1 and J_2, respectively.

Draw up the equation of motion of the first shaft, if the torque M_1 acts on it, and on the other shaft — the moment of resistance M_2. Neglect the friction in the bearings.

Quiz 11, Task 1