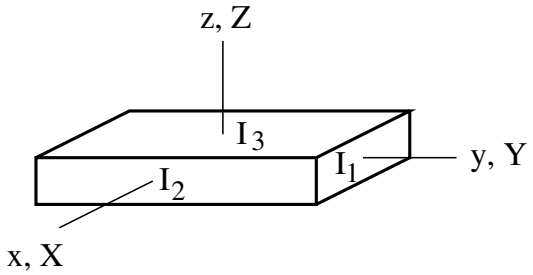
[mex174] Rotating rectangular box

A rectangular box with principal moments of inertia $I_1 < I_2 < I_3$ spins with angular velocity $\dot{\alpha}$ about the y-axis of the body frame, which, in turn, rotates with angular velocity $\dot{\beta}$ about the Z-axis of the inertial frame. The origins of both coordinate systems are at the center of mass and the axes of the two systems coincide at time $t = 0$. Find the rotational kinetic energy.



Solution: