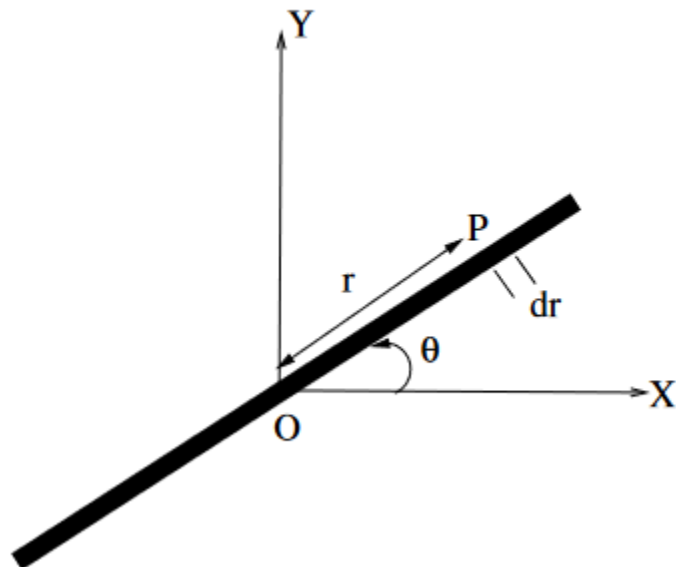


INDIAN INSTITUTE OF TECHNOLOGY PATNA

Physics

Tutorial 5

1. Three equal point masses m are located at $(a,0,0)$, $(0,a,2a)$ and $(0,2a,a)$. Find the principal moments of inertia about the origin and a set of principal axes.
2. Obtain the rotational kinetic energy of thin uniform rod of length l , and mass M , lying in the XY plane making an angle θ with the x -axis. Assume that the origin of the coordinate system is at the center of mass of the rod.



3. Consider rotation of a square plate of side 1 m and mass 1 Kg (Choose $m=1$ and $a=1$) about an axis in the plane of the plate and making an angle α with the x -axis. Find the principal axis of rotation using Eigen value and Eigen vector method discussed in the class.

