**PHYS 222 Classical Mechanics II (Spring 2019)**
**Homework #3, due Thursday Feb 13 in class**

Motion of a rigid body. Tensor of inertia.

1. Find the principal moments of inertia of a solid hemisphere of radius $R$ about its center of mass. Assume that the hemisphere has uniform density $\rho$.

2. What is the kinetic energy of a thin uniform square plate of side $a$ and mass $m$ when it is rotated about its diagonal with angular velocity $\omega$?

3. Calculate the moment of inertia of a homogeneous cone of mass $M$, height $H$, and radius $R$ about an axis that lies on the surface of the cone and passes through its apex.

4. Problem 11-10 in Marion.

5. Problem 11-24 in Marion.

Found an error or need a clarification? Email the instructor at sergiy.bubin@nu.edu.kz