Analytical Mechanics Report

due date: February 12 (Friday), 2010
should be submitted to Hirai's room (East 4F)

1. Simulate the free rotation of a rigid body in 3D space. Assume that we can apply any external torque to the rigid object. Let the body remains still at the initial time. Investigate a sequence of torques that guide the rigid body from the initial orientation to another orientation.

2. Simulate the 2D viscoplastic deformation of a rectangular object. Let λ^{ela} and μ^{ela} specify the elasticity of the object, λ^{vis} and μ^{vis} determine its viscosity, and ρ be its density. Assume that one edge of the rectangular object is fixed to a rigid wall and an external force is applied to a point on its opposite edge for a while.