

The present work deals with simulation methods for rigid bodies and deformable bodies. In the first chapter you can find research of some methods for simulation of rigid body physics with emphasis on method used in open source physics engine Bullet. In second chapter you can find methods for simulation of deformable bodies, again with emphasis on Bullet physics engine. In last chapter model order reduction technique is presented. This method enables to reduce system of ordinary differential equations. These equations come for example from applying finite element method to partial differential equations describing motion of elastic body. The technique is studied on bar truss systems.