

This work is intended for all interested in physical modelling, discrete computer simulations and motorism. Text part describes mathematical model of a car, description of forces and effects which occurs within car motion. Model is focused especially on the engine, transferring the torque, braking and turning. Furthermore the thesis deals with electronic systems like ABS or ESP, which improves the steering control. The most important part of this work is a computer application for simulating and visualising the model. The program supports batch input and become a useful tool for experimenting with different settings of the car. Text part of the work includes screenshots taken during the tests and along with mathematical interpretation provides an insight into a physical principle of the car behaviour.