

## **Modular-hierarchical, Model-based Design and Optimization of a Control for an Active Suspension**

Ever increasing demand on comfort and dynamics of modern cars requires intensified use of complex technologies. Continuous advances rely on engineers' ever deeper insight into the intricate interaction between chassis elements. When active elements are used in the vehicle the result will be a wider range of design possibilities and thus a gain in comfort and safety. The present thesis describes the entire design cycle for a new active suspension system. The design is done successively, from the formulation of the task to the computer-aided design of actuator system to identification of the entire system and model-based layout of the hierarchical control to its commissioning in the target vehicle. The thesis focuses on a structured control design. The control algorithm offers a multitude of possibilities of adapting the control structure to changes in the system.