



January 10, 2018
Student affairs department
Faculty of Mechanical Engineering
Brno University of Technology

Statement by Supervisor

Michal Kubík submitted the doctoral thesis entitled Magnetorheological Suspension Damper for Space Application.

During his work, it means during last 4 years, on dissertation thesis, he became a key member of our research team. The magnetic simulations of magnetorheological devices belong between his main responsibilities, especially magnetostatic and transient simulations in 2D with applied axis-symmetry and very difficult 3D simulation. Michal has also high level of knowledge about suitable materials for designing of ultra-fast magnetorheological valves. He is also author and executor of idea of shape approach for achieving of ultra-fast response time at MR dampers. He can combine various materials with grooves having the specific shape, location, or number of these shape. He can evaluate the contribution of these combinations by 3D transient simulation of magnetic circuit, which is really, difficult because of the thin grooves. The experimental verification of all models took a lot of time.

His dissertation thesis is focused on combination of many models (hydraulics, magnetics) ensuring design of the magnetorheological valve on the basis of requirements for given purpose. The most often basis on requirements on the damping forces and controlled frequencies. I am very satisfied that Michal finished his work. I think that the use of his methodology to designing of MR valves in practice is the best evaluation of his thesis. And based on his work, the ultra-fast MR damper for Hyundai company and adaptive yaw damper for railway were designed.

Michal is hardworking man, sometimes a little rash, but I think that all scientists are a little rash.

Sincerely,

Doc. Ing. Ivan Mazúrek, CSc.
Michal Kubík's supervisor