The presentation of the first-year Ph.D. students

Michal Kubík

ústav konstruování

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Presentation
9.10. 2013, Czech Republic

Content

- Introduction
- Master´s thesis
- Dissertation´s thesis
- Teaching and future work

Introduce myself

Academic qualification:

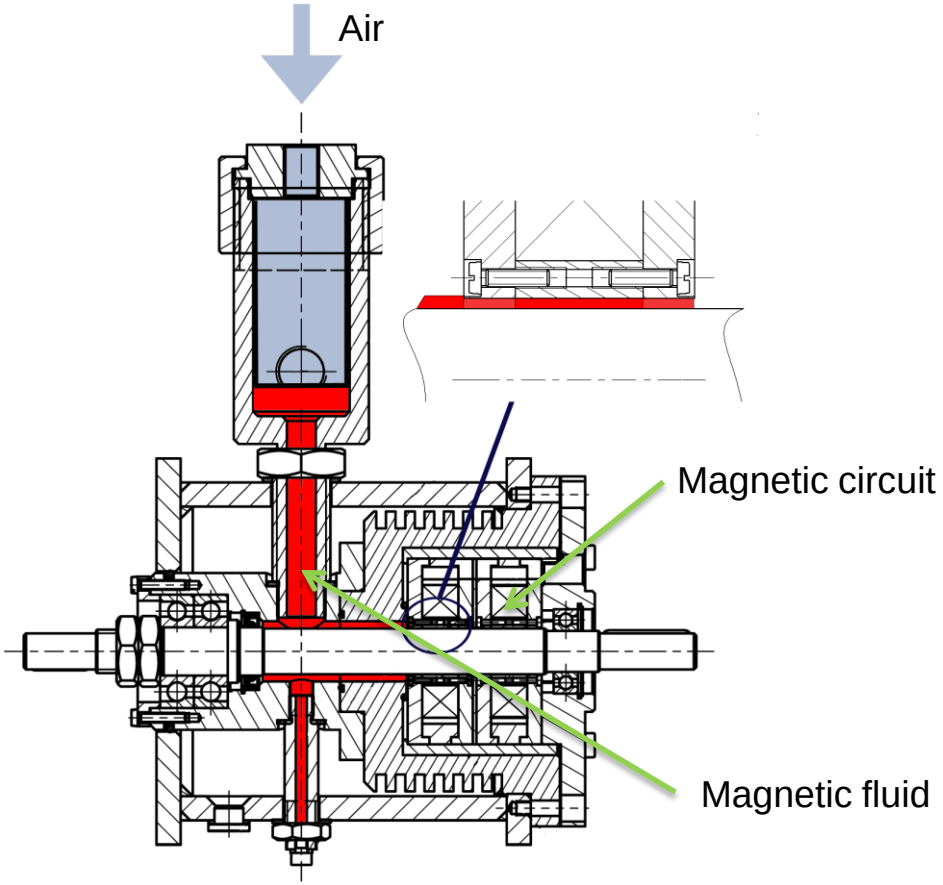
- 2008-2011 **Bachelor´s degree,**
  Brno University of Technology,
  Faculty of Mechanical Engineering,
  Mechanical Engineering

- 2011-2013 **Master´s degree,**
  Brno University of Technology,
  Institute of Machine and Industrial Design,
  Mechanical Engineering Design

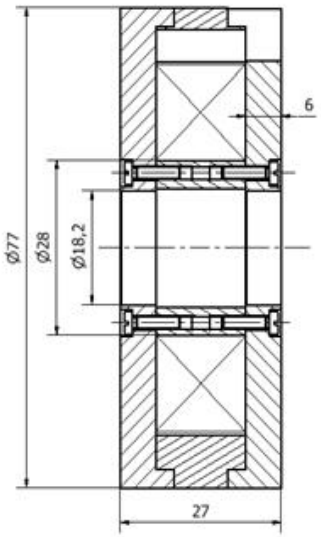
- 2012 **Erasmus** in University of Malta
  One semester in Faculty of Engineering

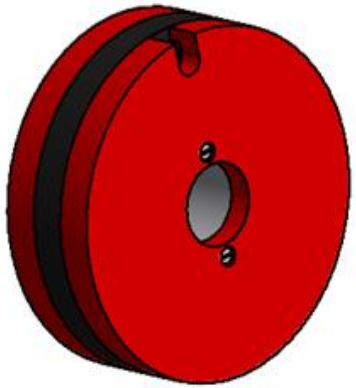
- **My Master´s thesis was:**

  DESIGN OF TESTING BENCH FOR DETERMINATION OF THE OPERATING PARAMETERS OF THE MAGNETIC SHAFT SEALING

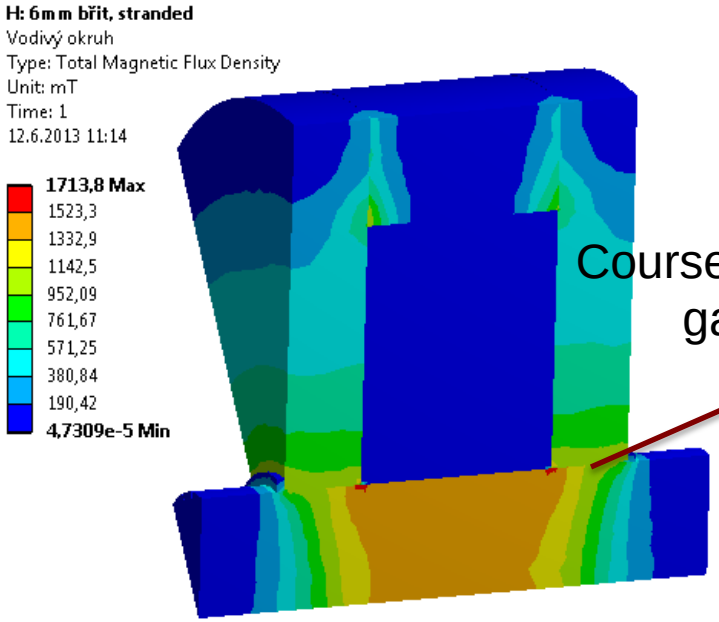


Magnetic circuit





- **Results of my Master´s thesis were:**
  - Experimental debugging FE model of the magnetic circuit
  - The design of magnetic circuit with knowledges from the FE analysis
  - Design testing bench and methodology of testing
  - Results of my master thesis was publication in conference Mechatronics 2013



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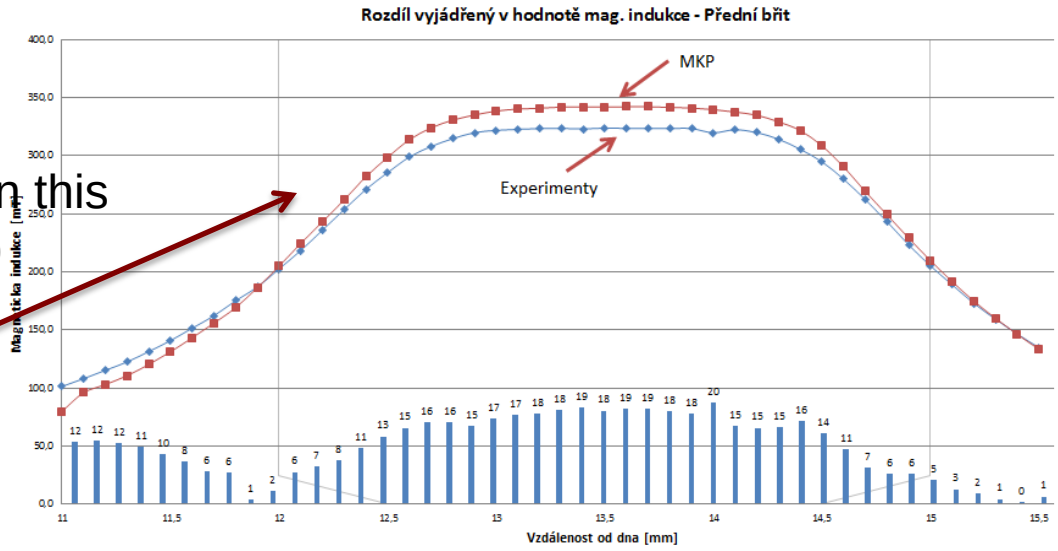


Dissertation´s thesis

- **Title of thesis:**

  DEVELOPMENT MAGNETORHEOLOGICAL DAMPER FOR SPACE SHUTTLE

- **Supervisor:** Doc. Ing. Ivan Mazůrek CSc.

- **Aim of thesis:**

  Develop magnetorheological damper for using in space shuttle agency ESA. This damper will be applied to control the space shuttle payload.

http://spaceref.com/onorbit/ariane-6.html

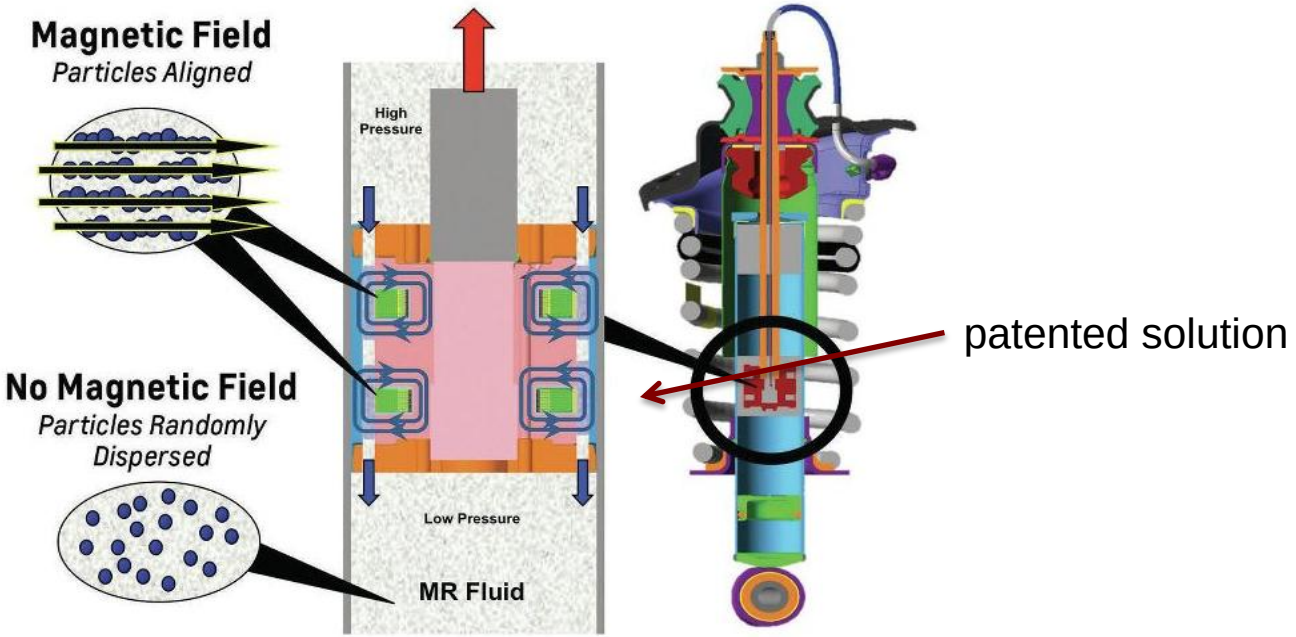
Dissertation´s thesis

- **The main difference betwen car and space shuttle magnetorheological damper:**
  - It will work in conditions of weightlessness
  - Low stroke of damper
  - Low or high temperature
  - Low weight
  - High requirements on hermetic tightness of damper
  - High reliability

Dissertation´s thesis

Expected problems in solving the dissertation´s thesis:

- Sedimentation
- Respect patent solutions
- Small strokes and high load - > Special design of the piston and magnetic circuit



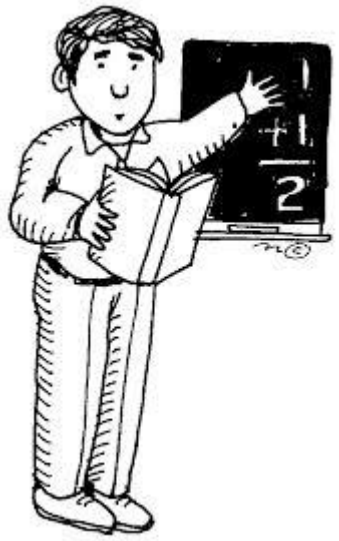
http://www.camaroperformers.com

Teaching and future work

- **Teachning:**

  5KS - Machine Design - Machine Elements

- **Future work:**
  - Literature overview
  - Research group



Thank you for your attention

M. Kubík

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