

Introduction of the First Year Ph.D. Student

Ing. Pavel Čípek

Institute of Machine and Industrial Design
Faculty of Mechanical Engineering
Brno University of Technology

The presentation of the first-year Ph.D. students,
5th October 2016



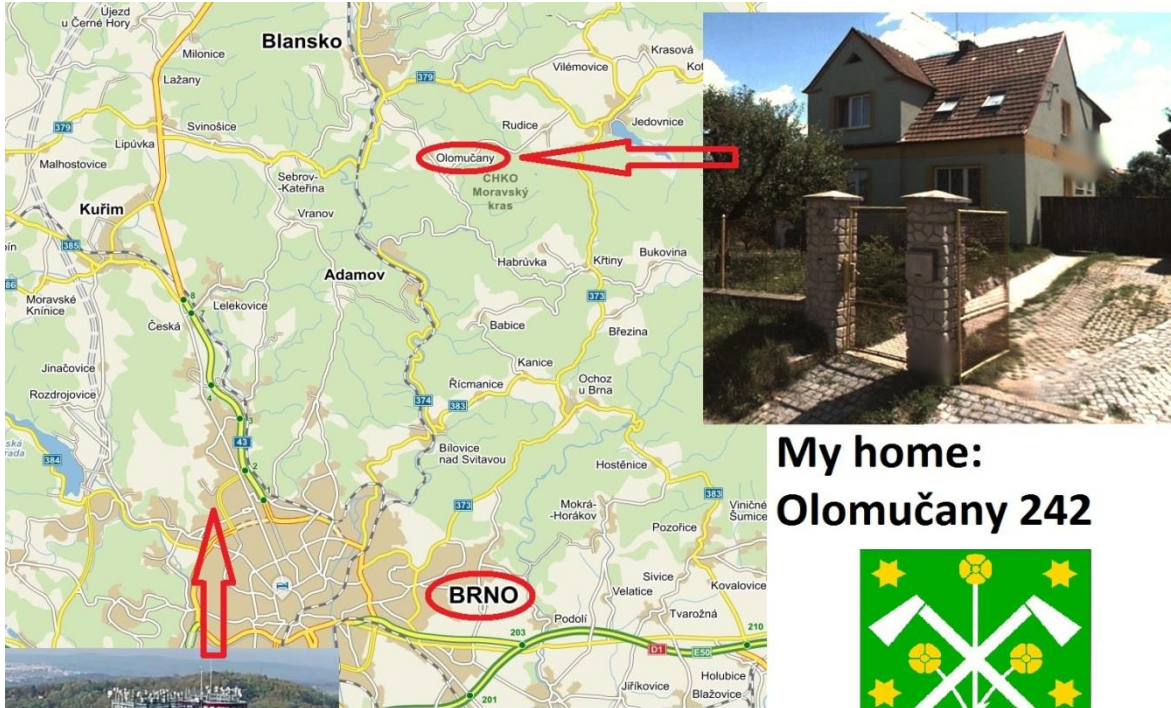
Institute of Machine
and Industrial Design

Content

- Introduction of myself
- Education and academic qualification
- Master's thesis
- About my dissertation tesis
- Work experiences
- Teaching and learning activities



Intruduction od myself



My home:
Olomoučany 242



Pavel Čípek

- A4/401
- Biotribology group



Olomoučany (1017 people)

- Olomoučany ceramics
- Mácha memorial
- New Castle ruins
- Forest spring



Intruduction od myself

Hobbies

- Motorcycles, cars
- Music band – Emergency
- Dance of folklore
- Computers
- Football



Education and academic qualification

High school

- Secondary Technical School of Jedovnice



SPŠ Jedovnice

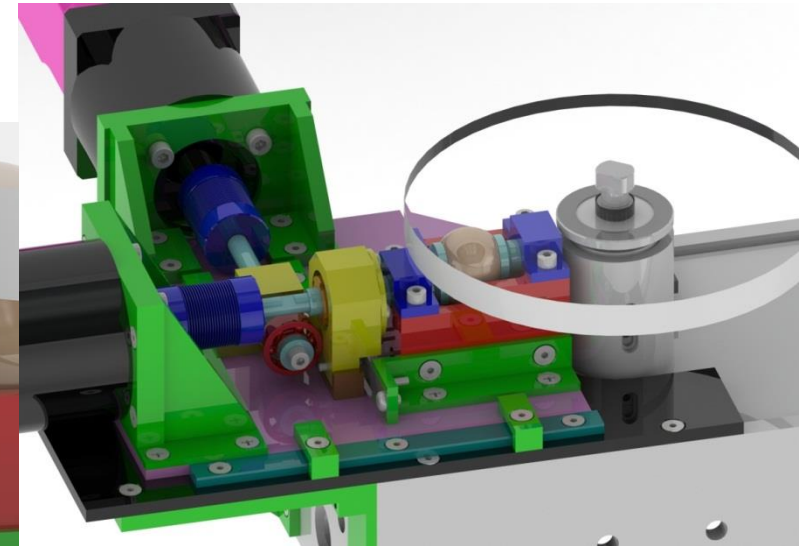
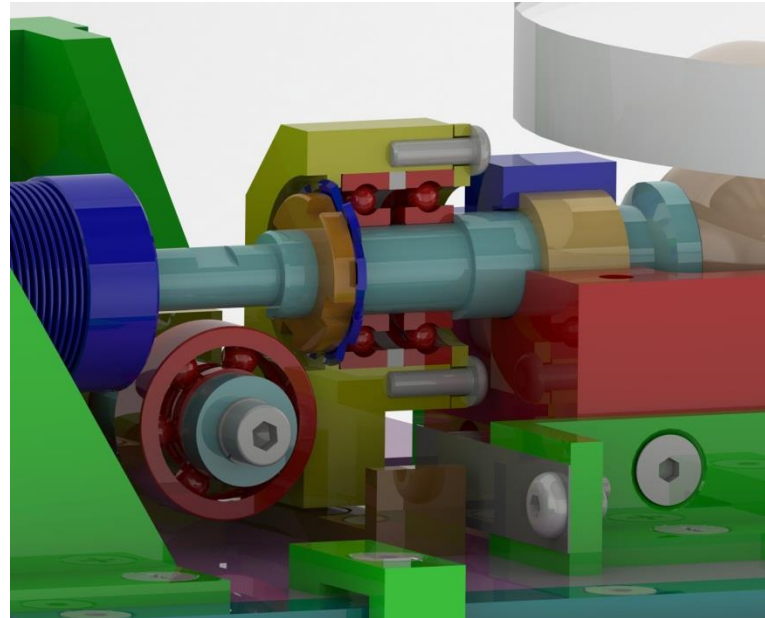
<http://www.spsjedovnice.cz/>

University

- Bachelor's degree programme at Brno University of technology
Faculty of Mechanical Engineering

Bachelor's Thesis: Design of equipment
for excitation of vibrations

Supervisor: Ing. Josef Frýza



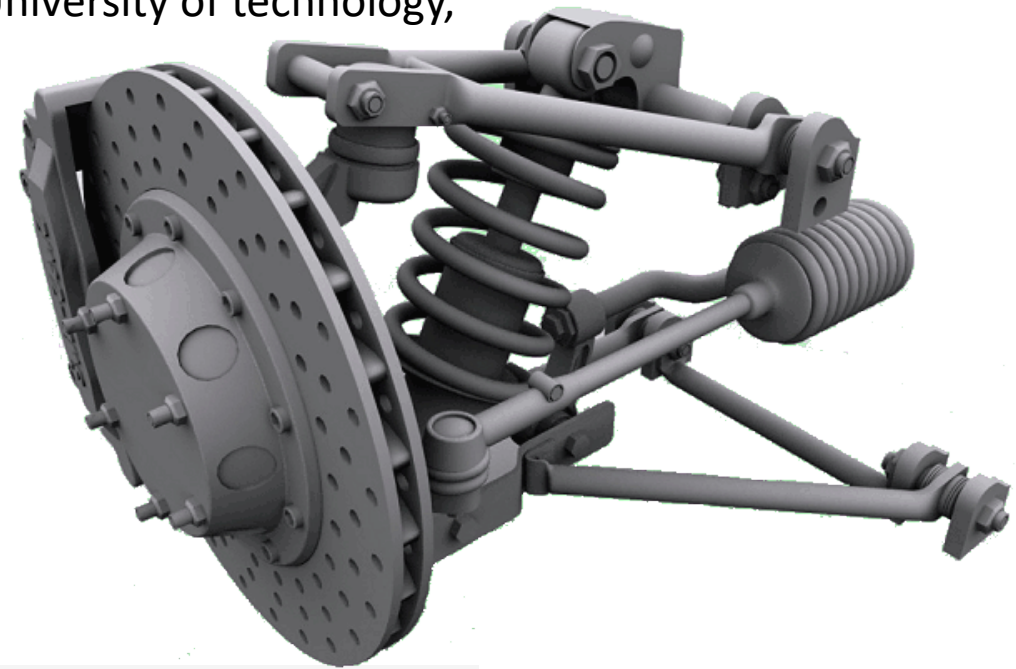
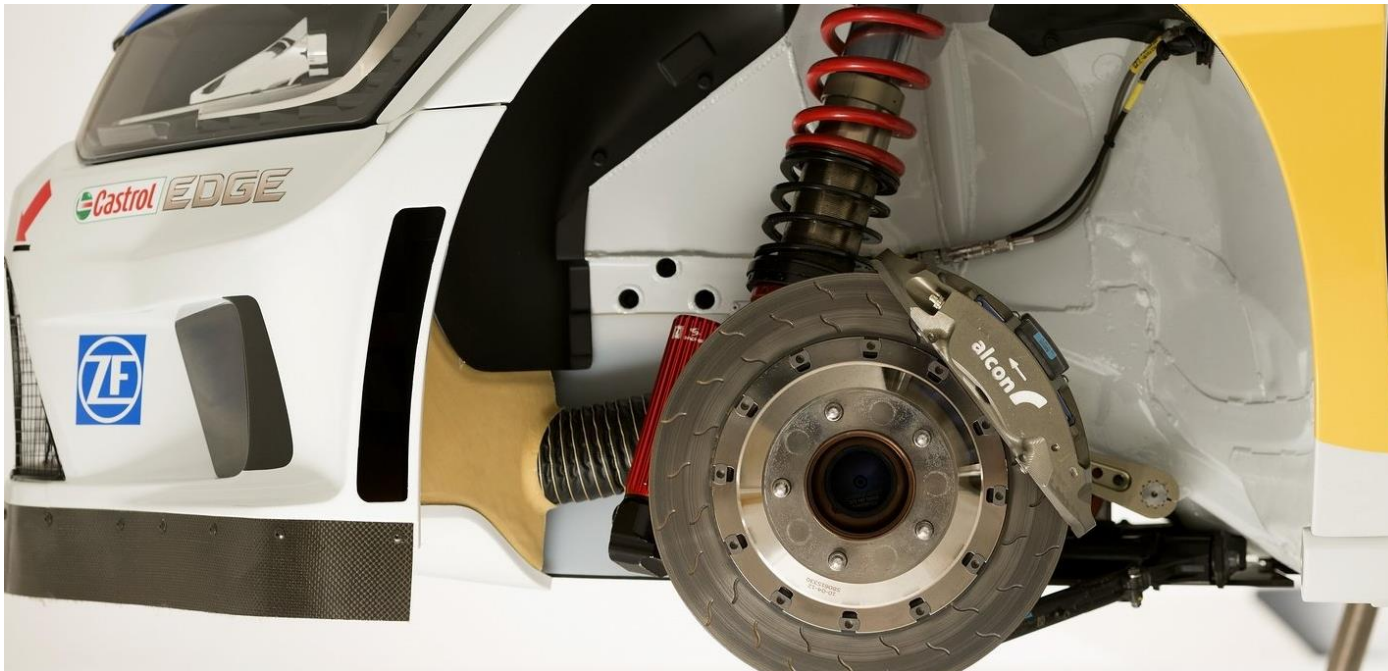
Education and academic qualification

University

- Master's degree programme Mechanical Engineering Design at Brno University of technology, Faculty of Mechanical Engineering

Master's Thesis: Testing of automotive sport suspension

Supervisor: Ing. Zbyněk Strecker, Ph.D.



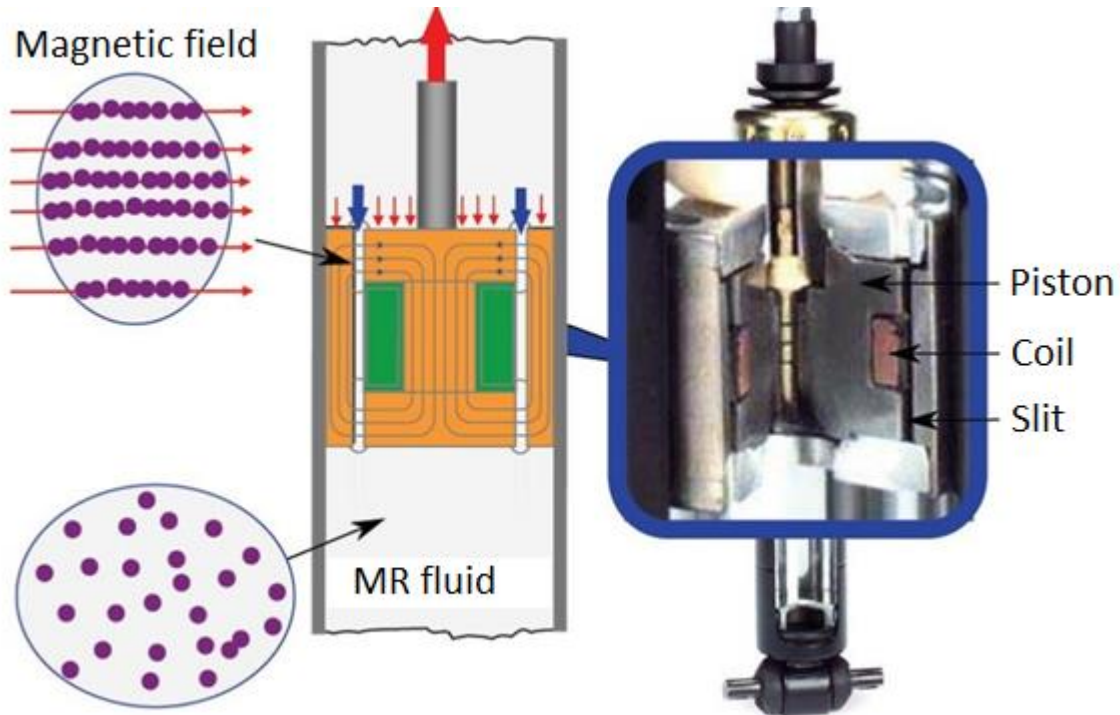
Passive suspension

source: <http://auta5p.eu/>

Education and academic qualification

Aim of Master's Thesis

- Confirm the positive impact of MR damper controlled by semiaktiv algorithms on the suspension quality



The main part of MR damper

source: *Semi-active vibration dynamics control*

Experimental equipment

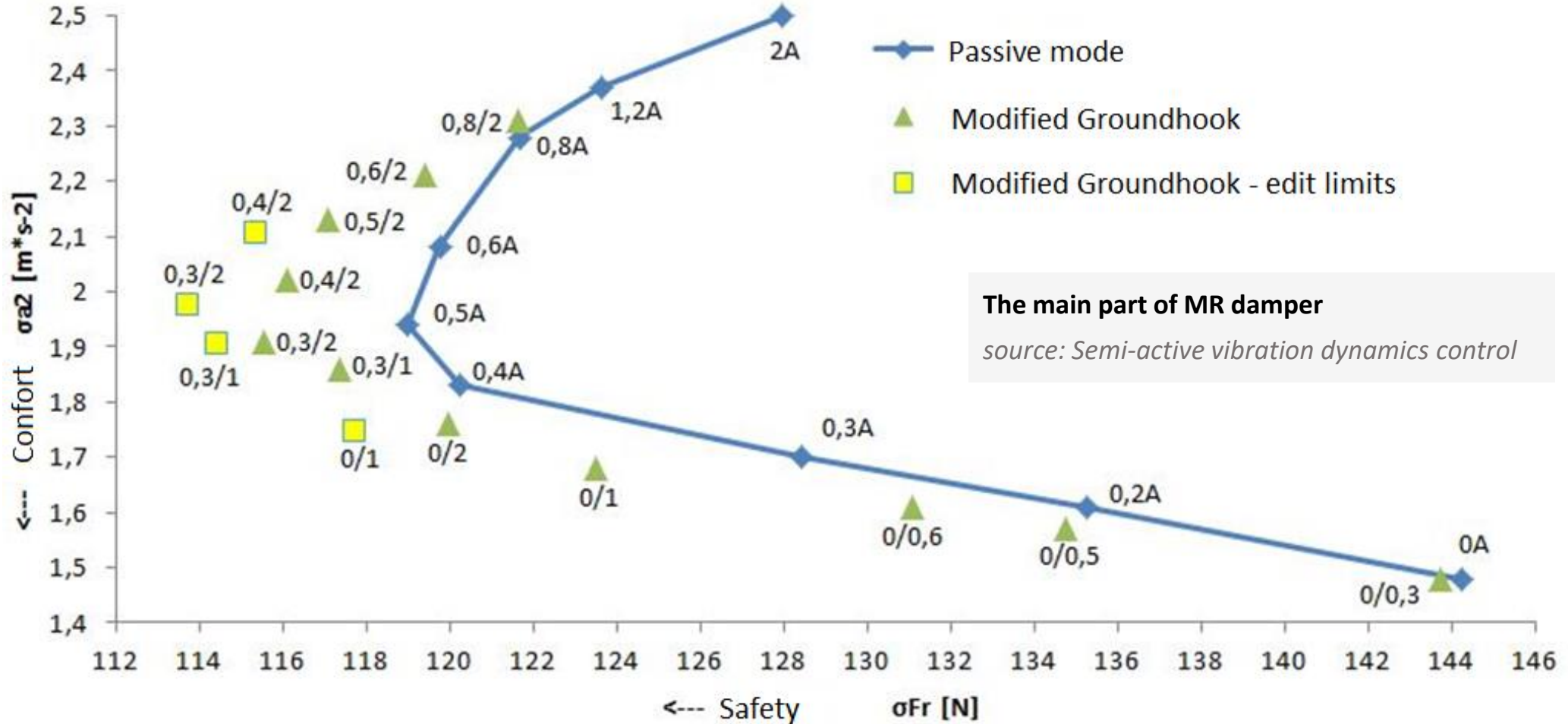
source:

<http://www.konstrukting.cz/nebud-obycejny-konstrukter/>



Education and academic qualification

Results of Master's Thesis



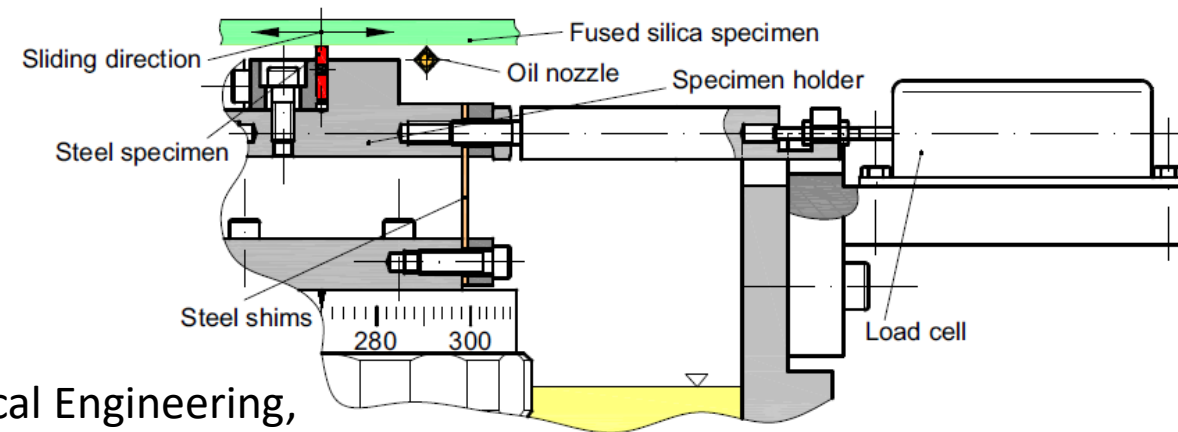
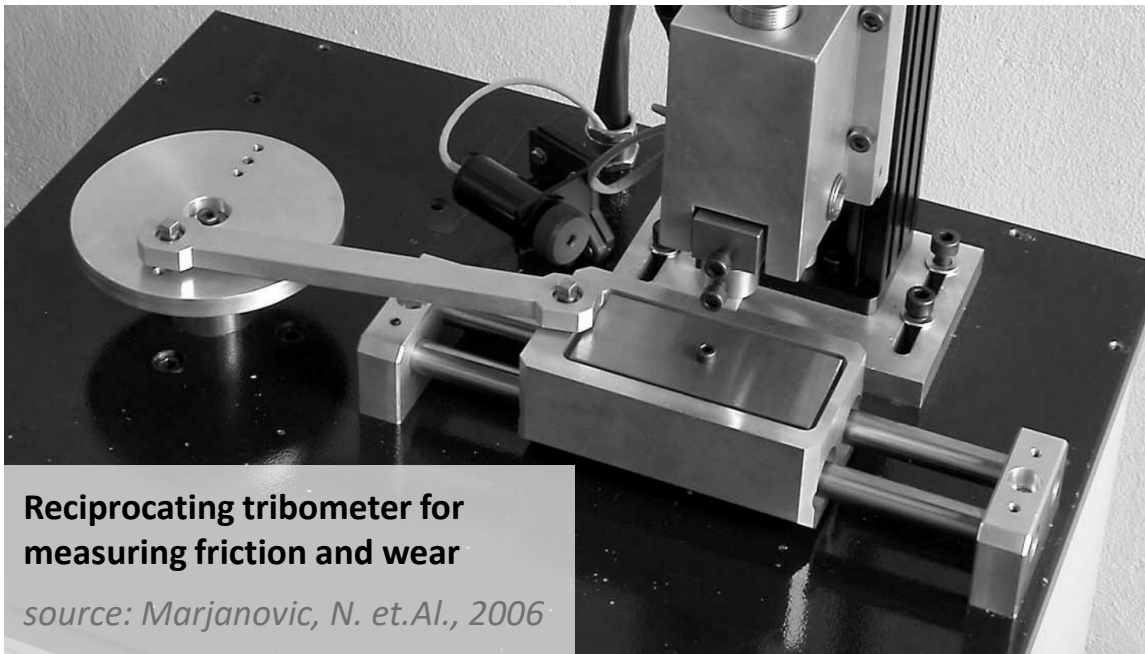
About my dissertation

Ph.D. Study

- Institute of Machine and Industrial Design, Faculty of Mechanical Engineering, Brno University of technology

Ph.D. Thesis: Design of tribometer for visualization of compliant contacts

Supervisor: doc. Ing. Martin Vrbka, Ph.D.

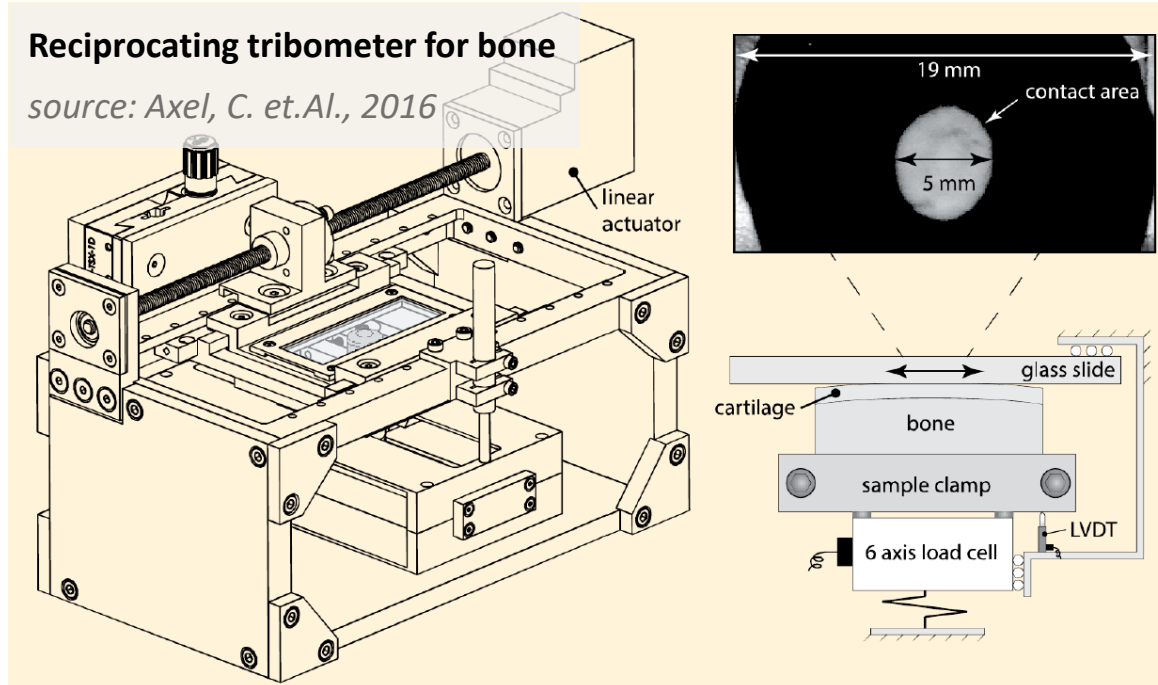


Reciprocating tribometer for compliant contact

source: Vlădescu, S. et.Al., 2016

Reciprocating tribometer for bone

source: Axel, C. et.Al., 2016

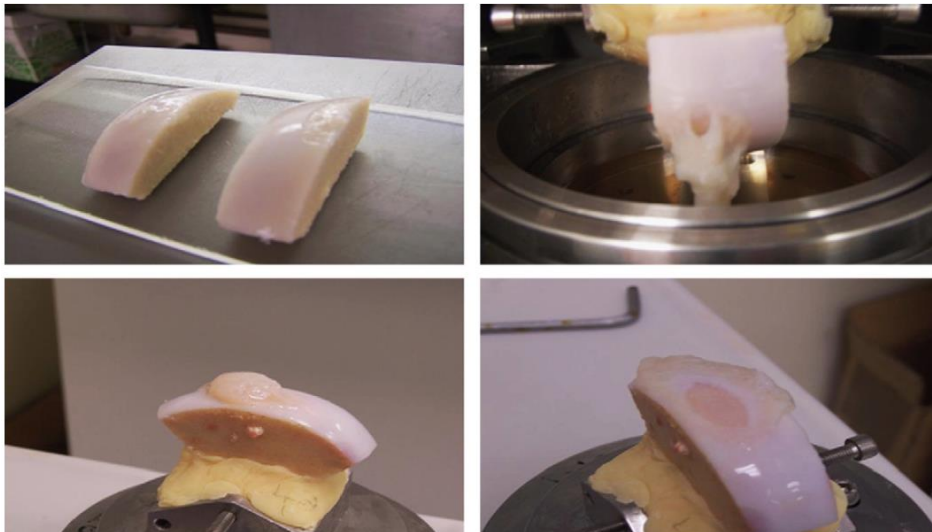


About my dissertation

Aim of my dissertation thesis

- Design tribometer for observation of mechanisms of lubricant film formation
- Observed friction and thickness of lubrication film between the cartilages using optical methods available at the ÚK depending on the composition synovial fluid

- *Bachelor's Thesis* – Design of parts of tribometer with reciprocating motion
- *Engineering project* – Engineering design with reciprocating tribometer

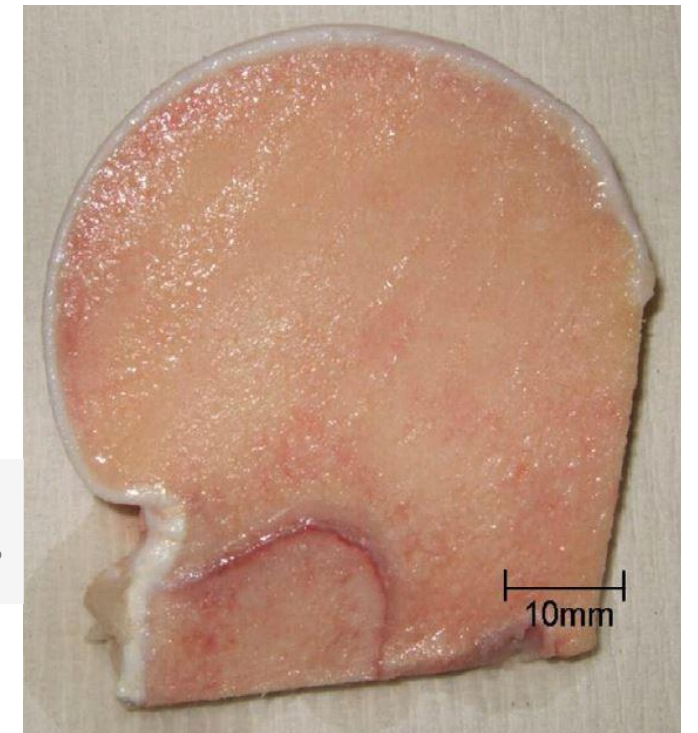


Section through cartilage

source: Udofia, I. et.Al., 2008

Worn cartilage

source: Udofia, I. et.Al., 2008



Work experiences



- 2 years in GEA PT BOHEMIA s.r.o. – job designer
- 2 years in ČKD BLANSKO HOLDING – job designer



Butterfly valve DN 4500 PN 12

source: <http://www.ckdblansko.cz/>



Pressuring bottom DN 4500 PN 16

source: <http://www.ckdblansko.cz/>



CK tanks for beer

source: <http://www.gea.com/>



Teaching and learning

Teaching

- 3CD – AutoCAD, Inventor
- CKC – Constructing and CAD
- 1K – Basics of design

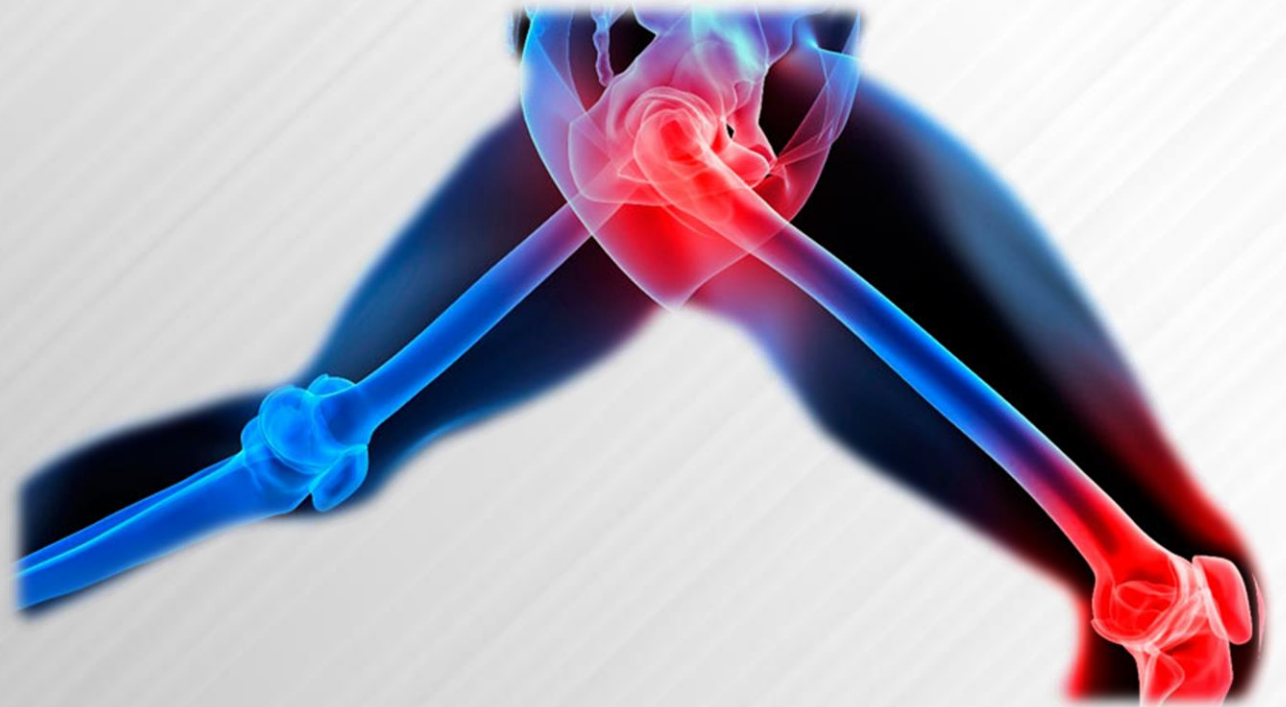
Learning

- 9MOP – Methodologies of Scientific Work
- 9VPR – Research Project and its Manag
- 9EHD – Elastohydrodynamics
- 9EXT – Experimental Methods in Tribology
- 9AJ – English for Doctoral Degree Study
- 0TW – Introduction to Technical Writing



Thank you for your attention

Ing. Pavel Čípek
Pavel.Cipek@vut.cz



<http://uk.fme.vutbr.cz/>



Institute of Machine
and Industrial Design