

Research, educational and other activities at IMID

Milan Klapka, doc.

ÚSTAV KONSTRUOVÁNÍ
Fakulta strojního inženýrství
VUT v Brně

FME BUT, 8. 7. 2020



Contents

- Introduction
- Research
- Education
- Coordination



Introduction

Department of condition monitoring

Vibro-acoustics brigade

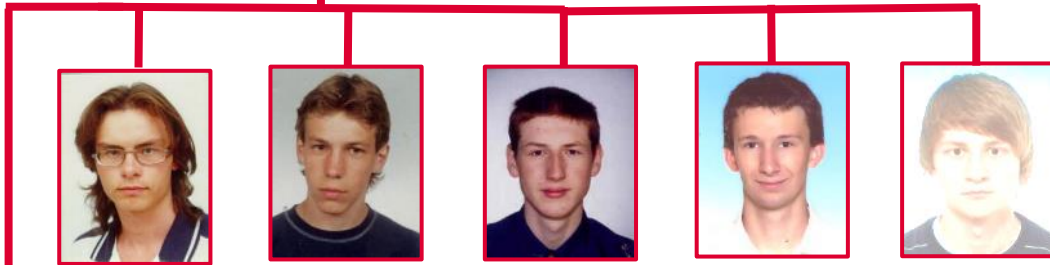
Non-destructive testing brigade



Brigade commander



Brigade commander



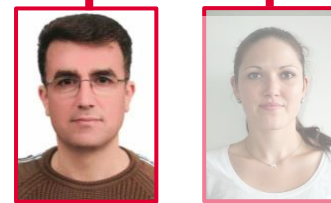
Employees



Employees



PhD students

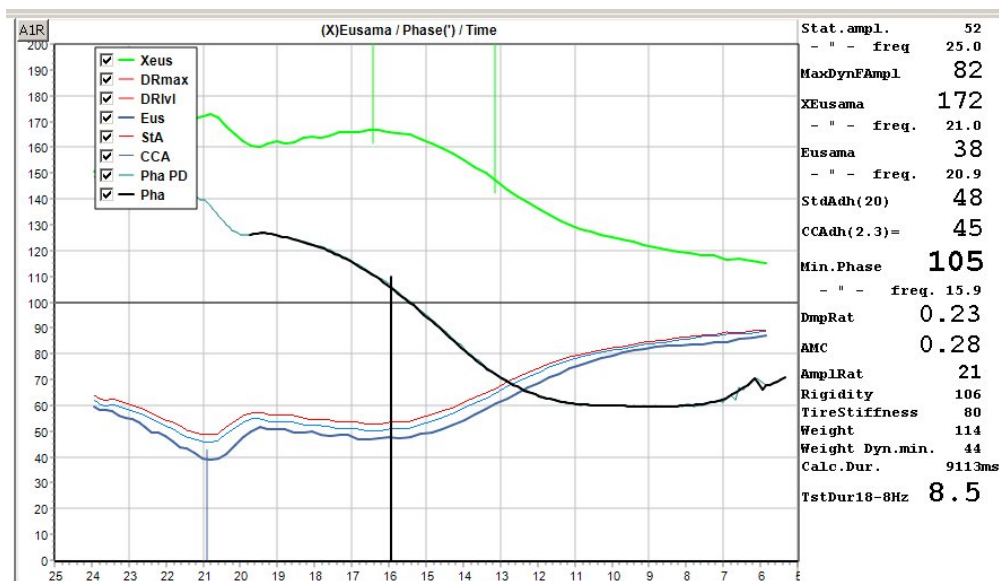


PhD students

Applied research

NCK MESTEC - Development of testing rig for motorcycle suspension assessment

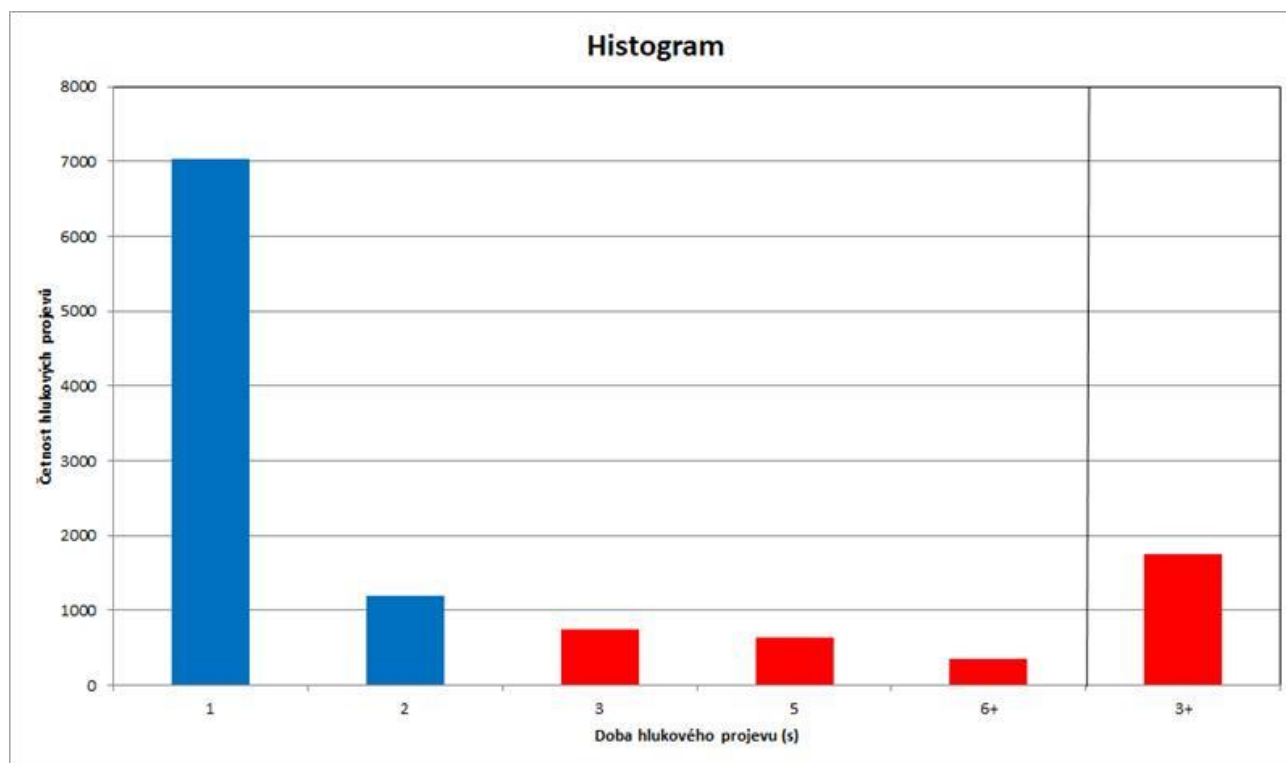
Cooperation with ModularTest s.r.o.



Applied research

Study of the noise radiation in rail applications

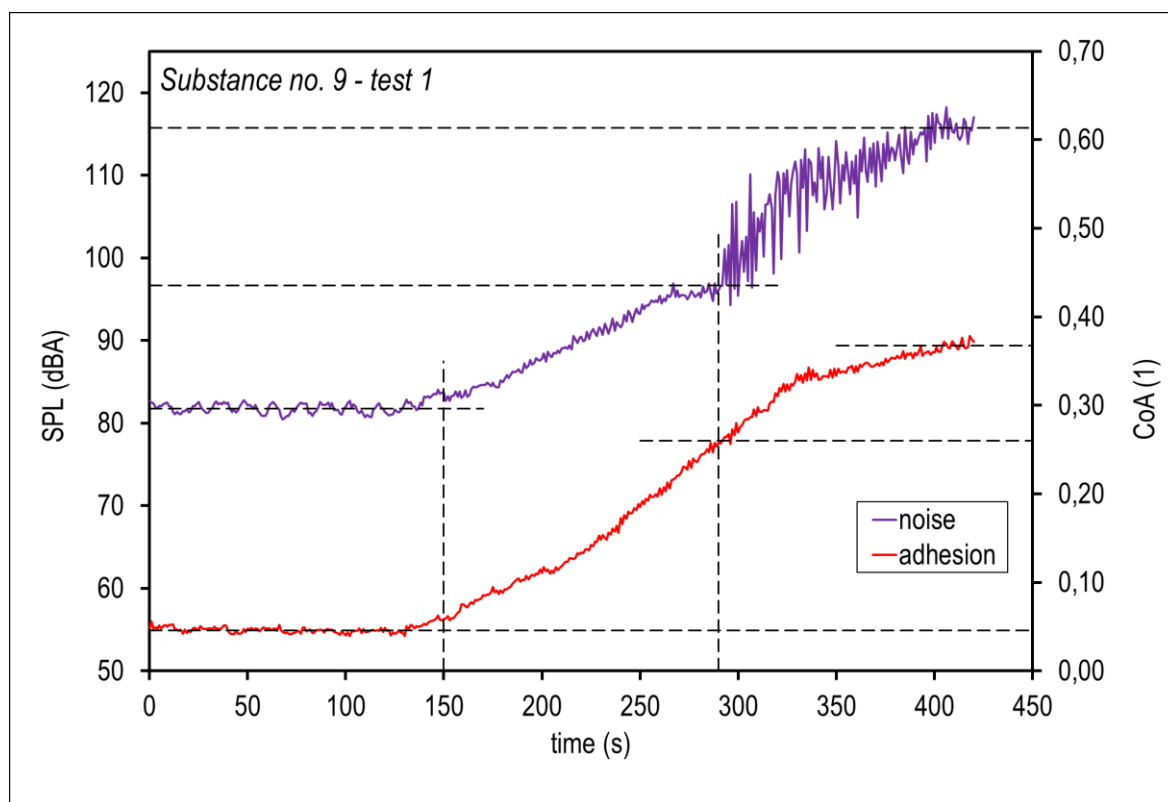
Cooperation with Tribology group. Study of relation between adhesion and noise. Development of smart device for application of the products for modification of the adhesion.



Applied research

Study of the noise radiation in rail applications

Cooperation with Tribology group. Study of relation between adhesion and noise in laboratory conditions on the twin disc device.

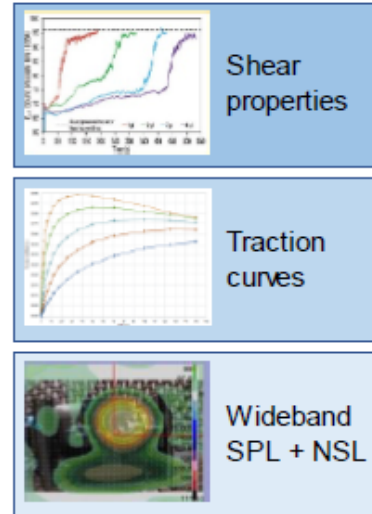


Fundamental research

GAČR - Squeal noise generation in the wheel-rail contact with modified friction

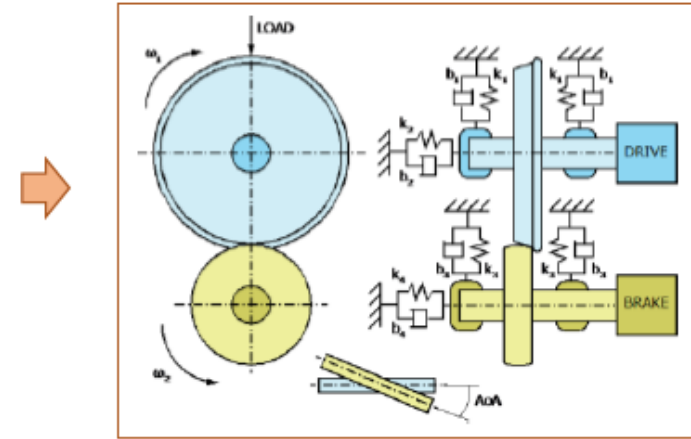
Cooperation with Tribology group.
The aim of this project is to provide extended explanation of the origin and occurrence of the wheel squeal noise in the wheel-rail contact with modified frictional properties.

EXPERIMENTS

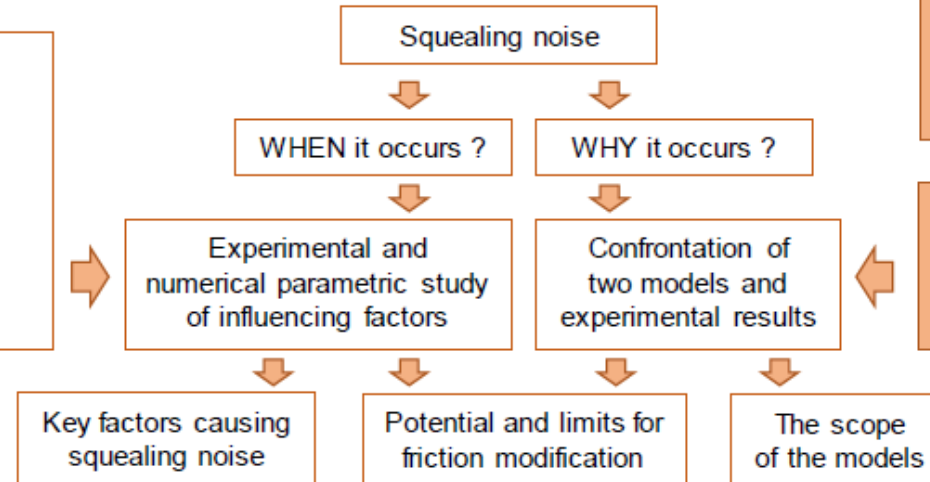


- Conditions
- Hertzian pressure
 - Rolling speed
 - Sliding speed
 - Angle of attack
 - Stiffness / damping
 - Frictional properties
 - Thermal properties

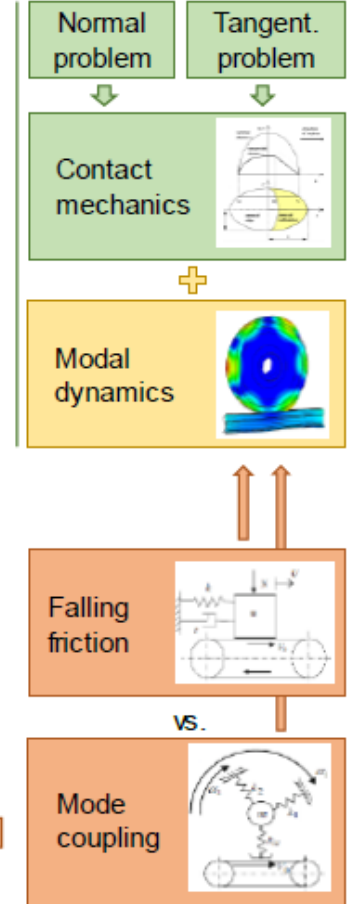
APPROACH



RESEARCH TASKS



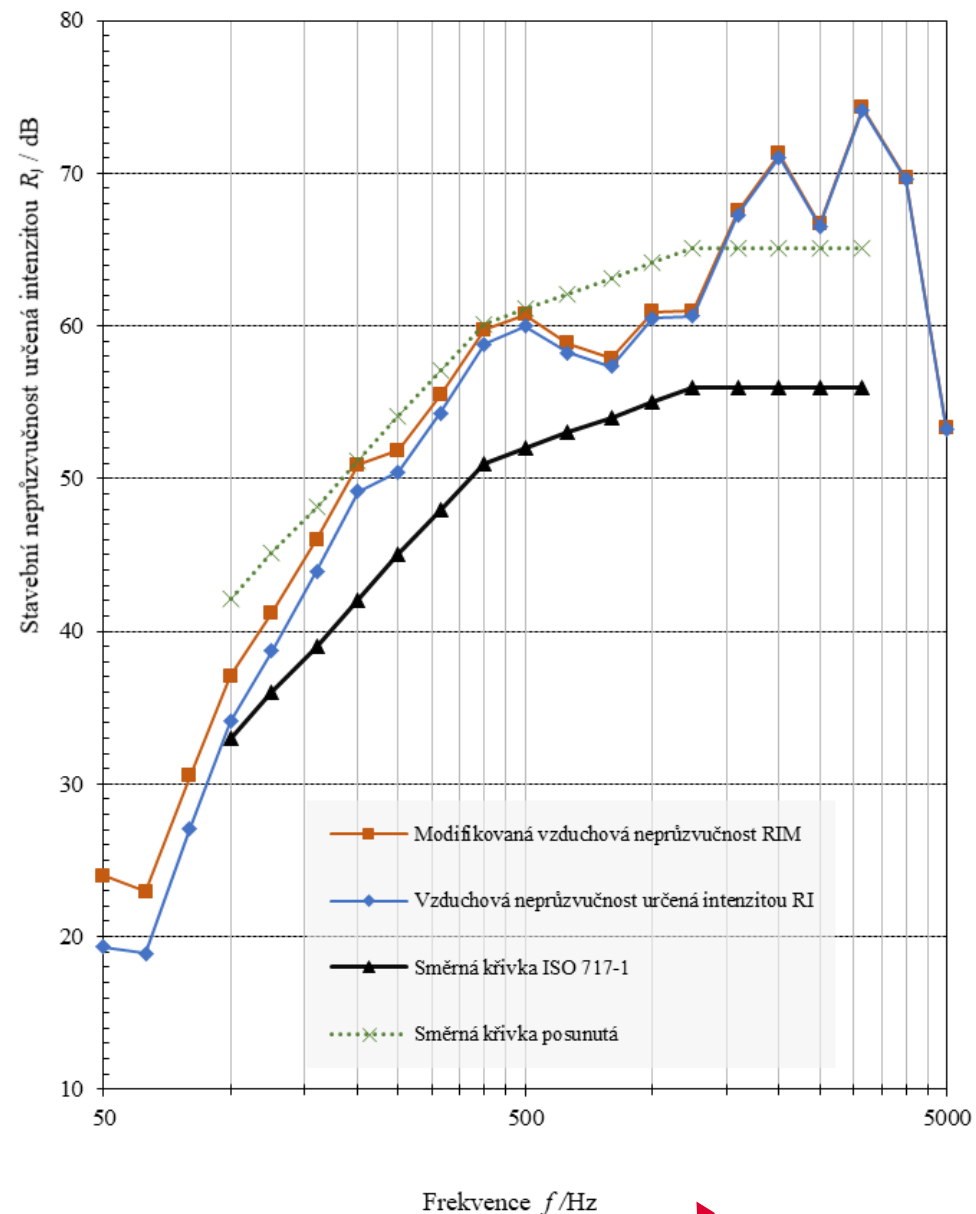
SIMULATIONS



Contractual research

Network Group, s.r.o.

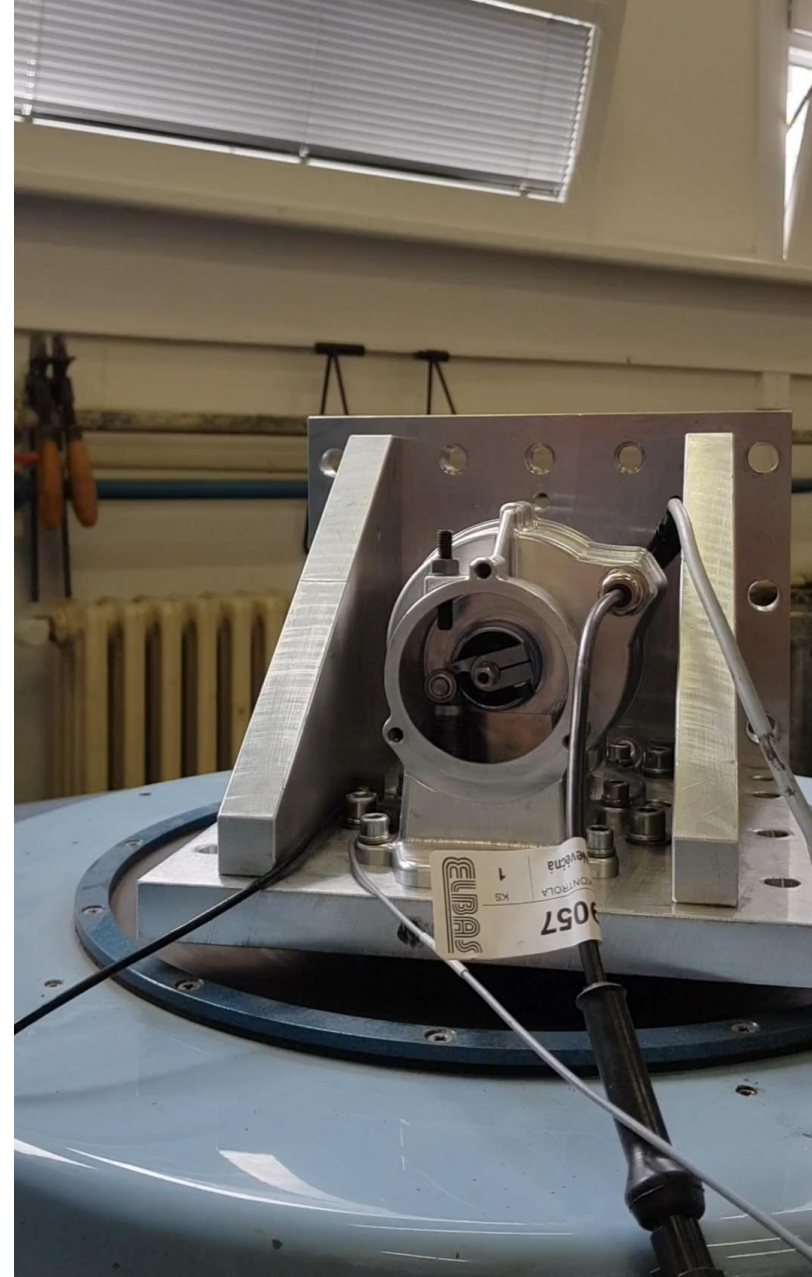
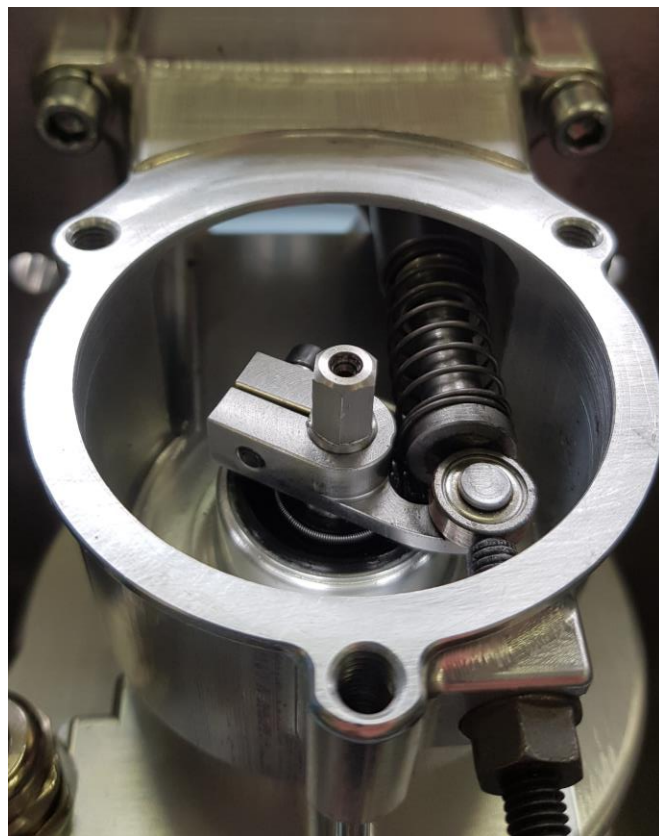
Measurement of airborne acoustic insulation in buildings.



Contractual research

MOTORPAL, a. s.

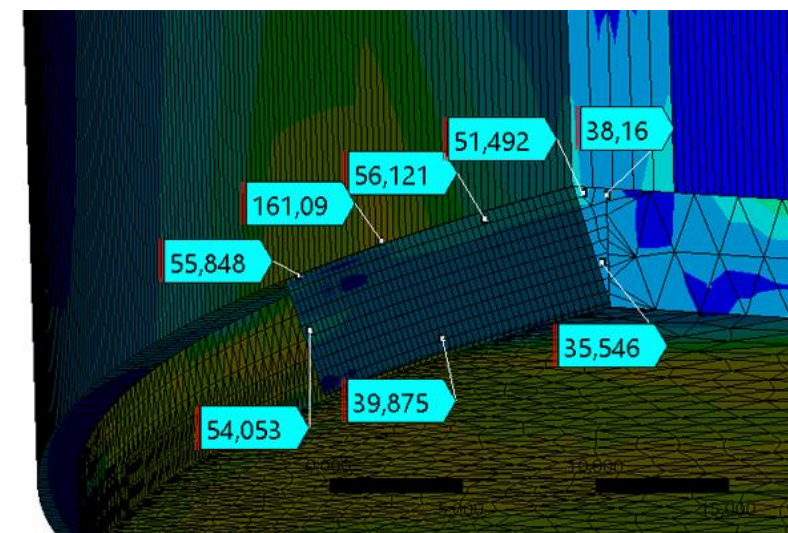
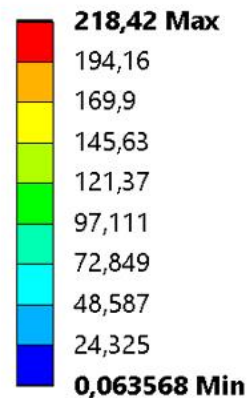
Reliability test of the fuel injection actuator.



Contractual research

Expert opinion

Expert opinion about design and function of the remote roadblocks.

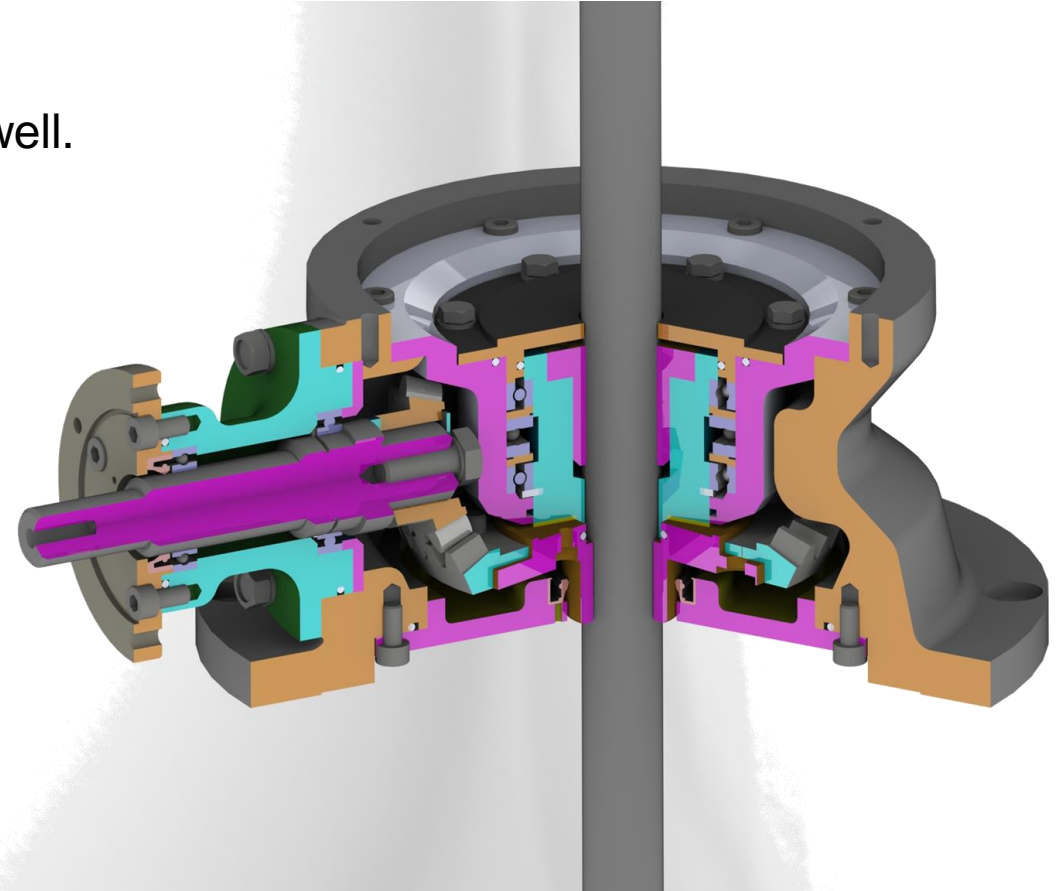


Education

Courses in 3rd year of general bachelor's degree programme

5KS and 6KT

- Teaching practicals regularly and occasionally lectures as well.
- Preparation of the teaching materials.
- Running e-learning support.
- Supervising electronic exams.



Education

Courses in master degree study – ZKP, ZIP

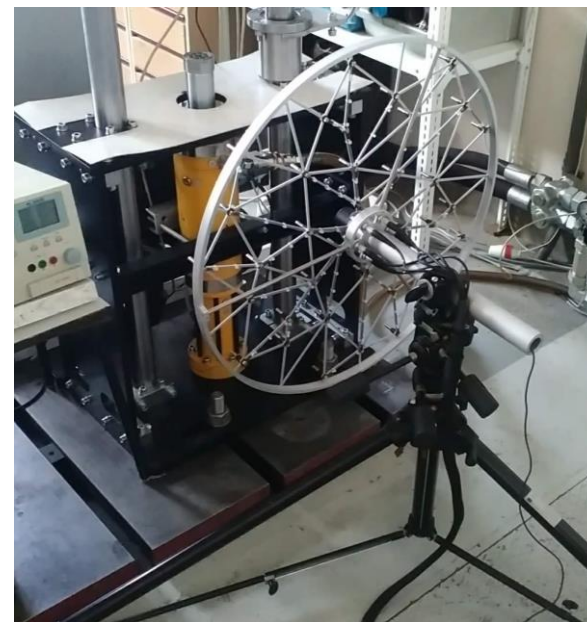
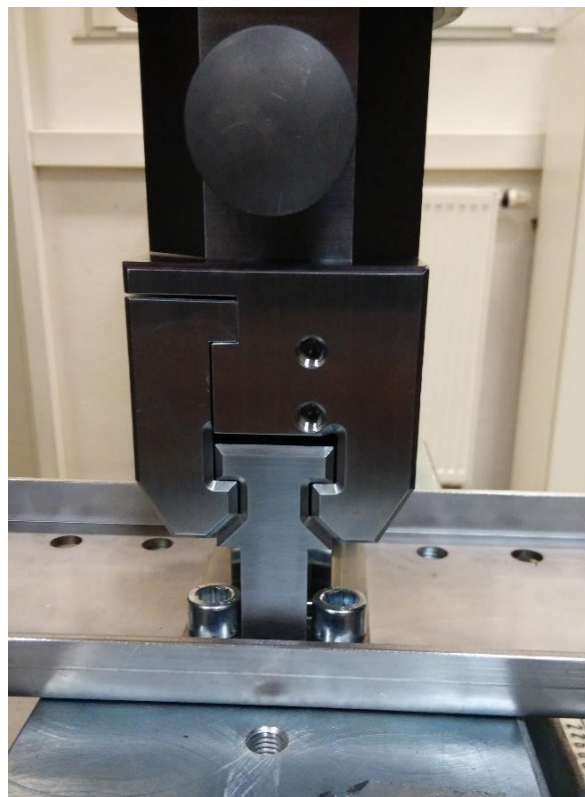
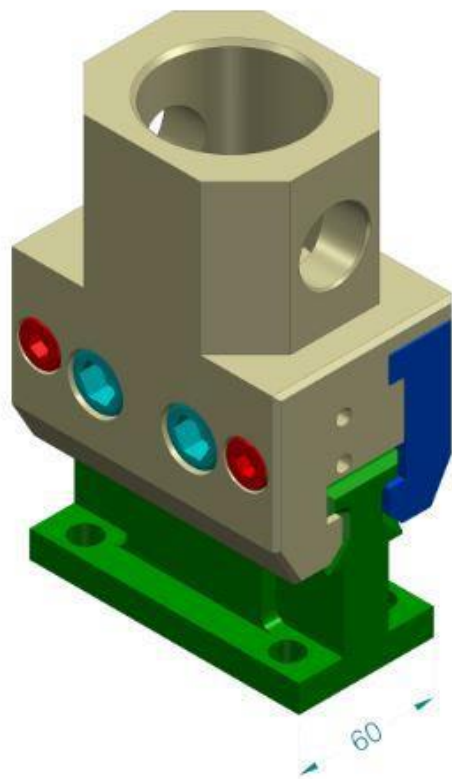
- Leader of semestral projects.

Preparation of the new course Analytical project - ZAP



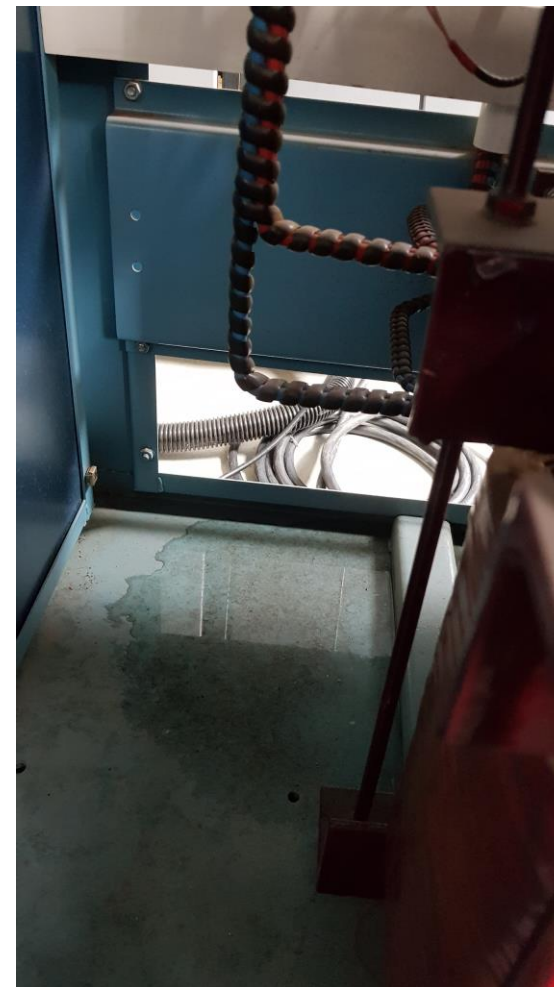
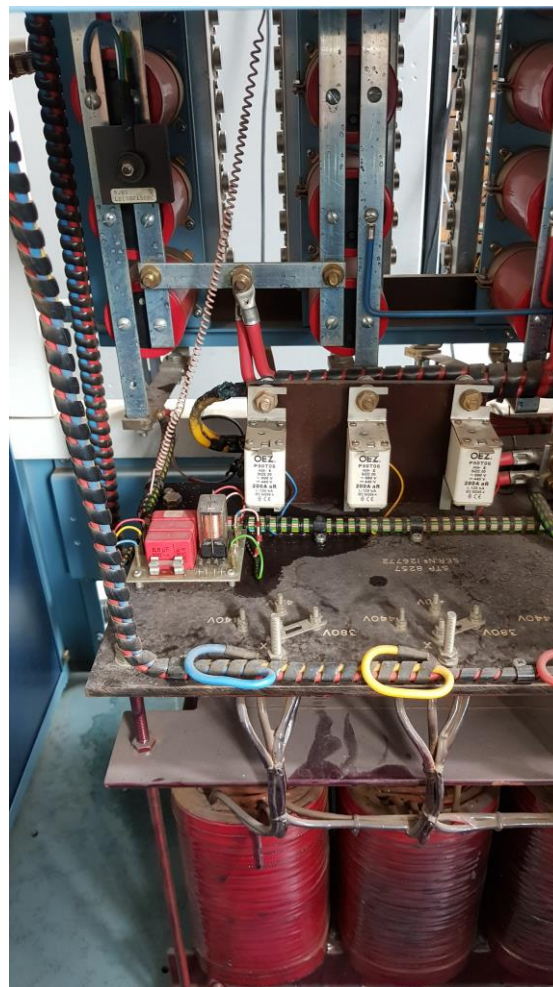
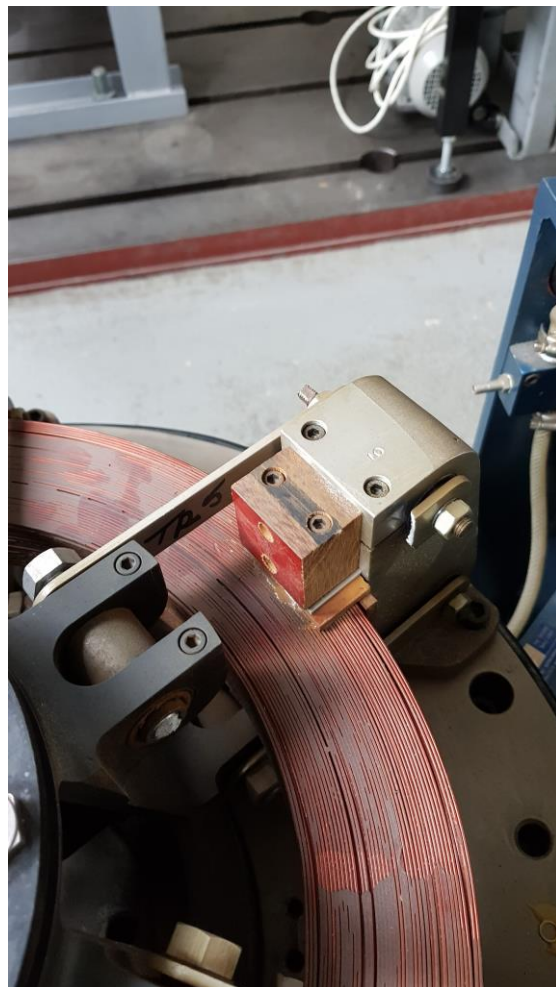
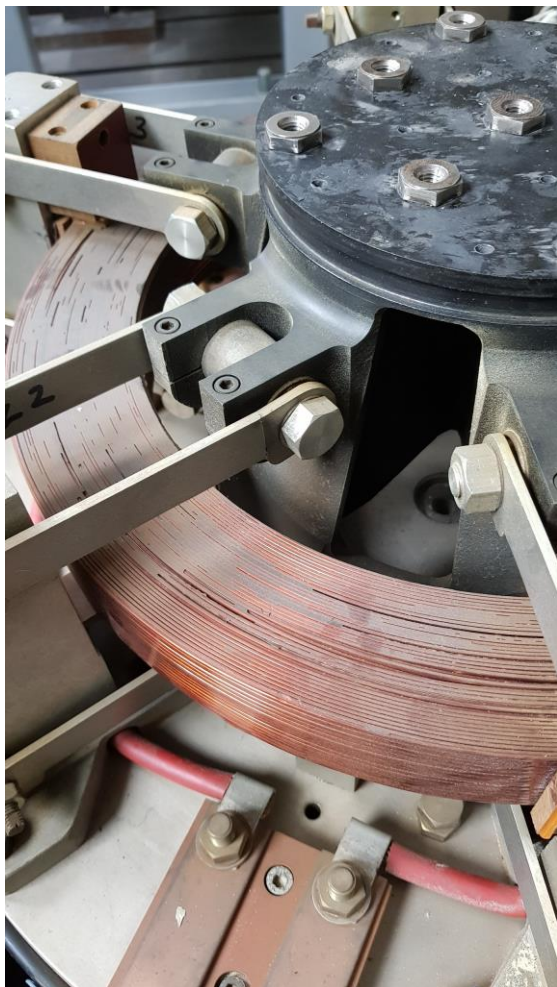
Education

Supervising diploma and bachelor thesis



Other activities

Saving old equipment ☺ - electrodynamic exciter Derritron VP80



Bosnia and Hercegovina and Montenegro



Lake Balaton and heavy traffic at Croatian border



Bosnia and Hercegovina and Montenegro



Vrbas river and Plivsky waterfall in Jajce

Bosnia and Hercegovina and Montenegro



Pyramid of the Sun
near Visoko and
Lukomir (1,495 m)
village



Bosnia and Hercegovina and Montenegro

Hotel Igman (Winter games 1984) and national park Durmitor



Research, educational and other activities at IMID

Bosnia and Hercegovina and Montenegro

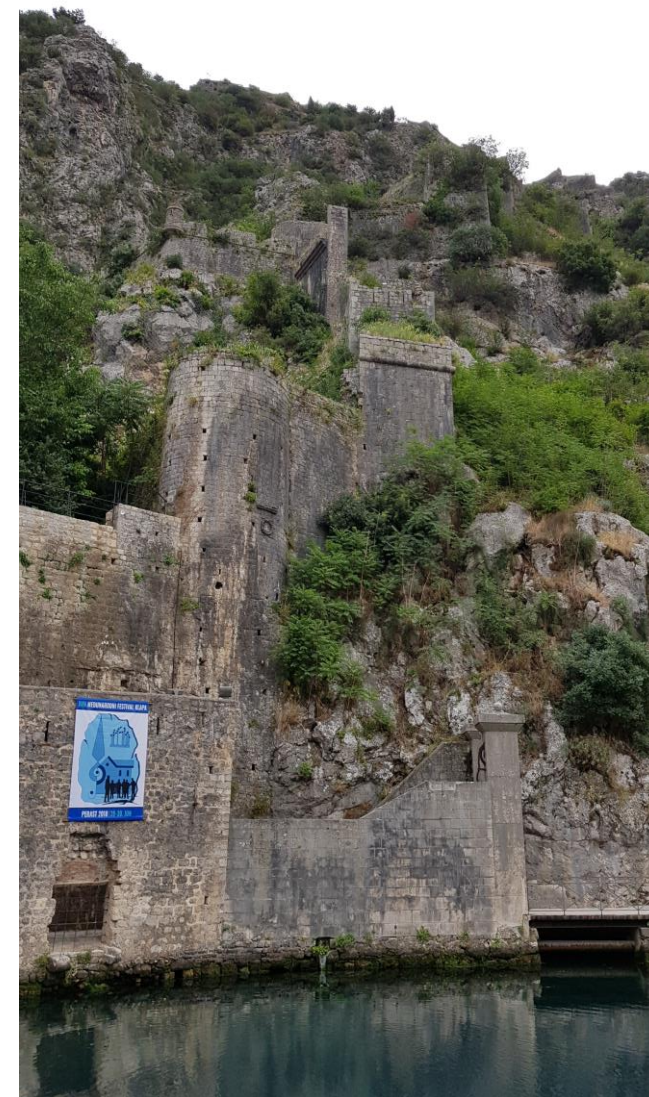


Heavy rain in Durmitor and road somewhere near Boka Kotorska

Bosnia and Hercegovina and Montenegro



First look on Boka Kotorska, finally dry camp and town Kotor



Bosnia and Hercegovina and Montenegro



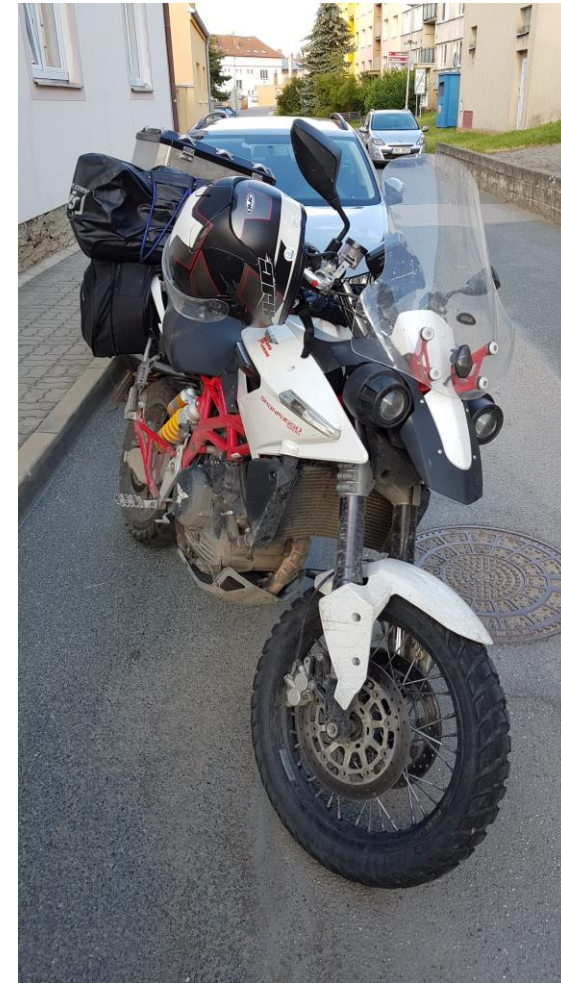
Kotor Serpentine – 26 loops

Bosnia and Hercegovina and Montenegro



Did somebody say rain?

Bosnia and Hercegovina and Montenegro



Research, educational and other activities at IMID

Mostar Brige with Staropramen
advertisement and finally at home

24/24

Thanks for attention

Milan Klapka

Milan.Klapka@vut.cz



ÚSTAV
KONSTRUOVÁNÍ

www.ustavkonstruovani.cz