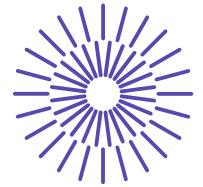


TUL – FME / RWTH IGMR visit

February 8 – 9

List of delegates



Jan Valtera

Jan Valtera studied at the Faculty of Mechanical Engineering of the Technical University of Liberec, in Czech Republic, where he also obtained his Ph.D. in 2014. He is currently an associate professor at the Department of Textile Machine Design and the Vice-Dean for the International and Public Affairs at the Faculty of Mechanical Engineering.

In 2009-2010 he spent 12 months as a visiting scholar at the City University of London, School of Engineering and Computer Science. The main research tasks he covers relate to design of machines and devices for production of nanomaterials, simulation of electric and magnetic field and implementation of magnetic systems into dynamic applications.

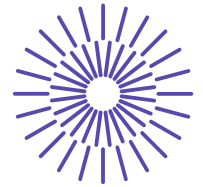
In his pedagogical work, he focuses on topics related to the construction of machines, especially in the field of spinning machines and machines for the production of nanofibers. He is currently guarantor of four subjects and delivers lectures in selected parts of other 8 subjects at the Faculty of Mechanical Engineering.

He is author or co-author of more than 40 journal and conference papers and co-author of 8 patents granted by the industrial patent office. As a principal investigator he carried out several research projects related to design of machines for production polymeric nanofibers and nanofibrous structures. He is a member of university research team working on various contract research projects under the Nano Technology Cluster Nanoprogress on R&D of machines and devices for production of nanofibers using DC and AC electrospinning technology and novel nanofiber materials.

More information are available at:

<http://www.fs.tul.cz/en/>

<https://kontakt.tul.cz/zamestnanec/626>



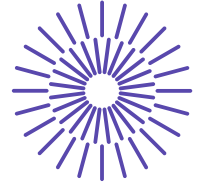
David Cirkl

David Cirkl studied at the Faculty of Mechanical Engineering of the Technical University of Liberec, in the Czech Republic, where he also obtained his Ph.D. in 2006. From 2014 he is an associated professor at the Department of Applied Mechanics.

He is author or co-author of more than 40 conference and journal papers and author of 1 patent granted by the industrial patent office. He carried out R&D projects focused to vibration isolation, dynamics of mechanical systems, mechanics of structural flexible materials, structural analysis and design of production machines. He is head of Laboratory of Experimental Mechanics equipped for material testing, fatigue tests, contactless optical measurement and vibration analysis.

In his pedagogical work, he focuses on topics related to the field of mechanics of rigid bodies (Statics, Kinematics and Dynamics) and experimental mechanics. He is currently guarantor of two subjects at the Faculty of Mechanical Engineering.

More information is available at: <http://www.fs.tul.cz/en/>



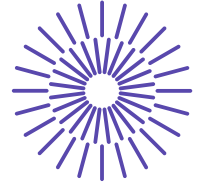
Jiří Rágulík

Jiří Rágulík is studying at the Faculty of Mechanical Engineering of the Technical University of Liberec, in the Czech Republic, where he also obtained his M.Sc. in 2021. From 2021 he is a Ph.D. student at the Department of Applied Mechanics, under the supervision of David Církľ.

He is author of 4 conference and journal papers. The main research tasks he covers relate to experimental mechanics, vibration isolation, dynamics of mechanical systems and their control with deep reinforcement learning algorithms. He is an intern at Škoda Auto and also works in its development center and Škoda Motorsport.

In his pedagogical work, he focuses on topics related to the field of mechanics of rigid bodies (Statics and Kinematics) and he is currently tutorial lecturer of these two subjects at the Faculty of Mechanical Engineering.

More information is available at: <http://www.fs.tul.cz/en/>



Jiri Komarek

Jiri Komarek is an assistant professor at the Technical University of Liberec, in Czech Republic, with more than ten years of experience in research and development projects and also with experience in educational projects and teaching at the Department of Textile Machine Design. He studied at the Faculty of Mechanical Engineering of the Technical University of Liberec, where he received a Ph.D. degree in 2018.

In 2012 he completed 5 months research internship on the Centre for Mechanics and Materials Technologies of University of Minho, Guimaraes, Portugal. In recent years he has been mainly engaged in research in the field of textile and single-purpose machines and marginally also in the field of laboratory technology.

In his pedagogical profession, he focuses on teaching in the field of sewing machine design, automation in the textile industry and the finite element analysis. He is currently guarantor of two subjects and he also lectures selected parts of other subjects at the Faculty of Mechanical Engineering.

He is author or co-author of more than 15 journal and conference papers and co-author of 3 patents and 3 utility models granted by the industrial patent office. As a principal investigator he has been carrying out several research projects related to design of textile and single-purpose machines and optimization of selected textile processes. He is also a member of other projects engaged in research and development in the field of textile and single-purpose machines.

More information are available at: <http://www.fs.tul.cz/en/>



Simon Kovar

Simon Kovar studied at the Faculty of Mechanical Engineering of the Technical University of Liberec, in Czech Republic, where he also obtained his Ph.D. in 2006. He is currently an assistant professor at the Department of Textile Machine Design.

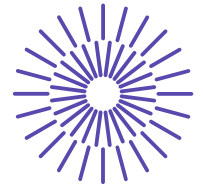
From 2009 to 2014, he was employed as a development designer at Benteler Ltd. (BENTELER Automobiltechnik GmbH).

The main work activities concerned the development of chassis parts for passenger cars. Specifically, it involved the development of axles and stabilizers for Ford, Suzuki, VW, Rolls-Royce, Audi, etc. In 2018, he worked at Mico-Robotic Ltd. The workload was in the design of technical solutions according to the customer's specifications.

In his pedagogical work, he focuses on topics generally related to the design methodology, single-purpose machines, weaving and knitting machines. He is currently the guarantor of four subjects and lectures selected parts of another 10 subjects at the Faculty of Mechanical Engineering, Faculty of Textile Engineering, Faculty of Mechatronics, Informatics and Interdisciplinary Studies and the Faculty of Economics.

He is author or co-author of more than 30 journal and conference papers and co-author of 8 patents and utility models granted by the industrial patent office. As a principal investigator he carried out several research projects related to design of machines for production textile structures. He also developed single-purpose machines and equipment for processing textile structures for textile and packing industry. As part of machine research and development, he also deals with the design and optimization of mechanical structures.

More information are available at: <http://www.fs.tul.cz/en/>



Vlastimil Hotař

Vlastimil Hotař studied at the Faculty of Mechanical Engineering of the Technical University of Liberec, in Czech Republic, where he also obtained his Ph.D. in 2005. He obtained his habilitation in 2021 and he is currently an associate professor at the Department of Glass producing Machines and Robotic and also the head of this department from 2019.

He is focussed on three basic areas of research, which are supported by results (publications, prototypes, and functional models). **Glass machines and new glass technologies and materials** are resolved both in the fields of applied and basic research. He is currently researching the possibilities of glass micromelting and the use of principles for 3D printing from glass. Acoustic glass is being developed in the framework of applied research. A unique glass-ceramic porous material has been obtained, as part of basic research, which is now being commercialised and has wide-spread application (www.baked.glass). The focus on glass machines can be seen in the field of glass processing, where he participated in the development of a unique glass matting technology, which is now offered commercially by Sklopan Liberec a.s.

He has long been involved in the **application of the fractal dimension** for the description of data from research and industrial practice. A methodology for the evaluation of an optical interface has been developed as a theme covered by basic research. In addition to the fractal dimension, the methodology also uses statistical tools. The methodology can now be used to describe the surfaces of materials after corrosion and contact with glass. The methodology is widely applicable to a whole range of interfaces and is not limited by the physical nature of the interface.

Processing of images and subsequently 3D models, especially of objects made of transparent and glossy materials, has recently been described in his habilitation thesis *Advanced Methods for Acquisition, Interpretation of Image Data and Their Application in Industry*. He also participated in the development of a unique device for supporting a 3D model of car windows, which is now commercially offered by FOR-G s.r.o. The evaluation of corrugation tests has been used for several years for operational control at the AGC Flat Glass Czech production plant in Teplice.

**Marcel HORÁK**

Marcel Horák studied at the Faculty of Mechanical Engineering of the Technical University of Liberec in the Czech Republic. At this university he obtained Ph.D. in 2005 and habilitation in 2022. He is currently an associate professor at the Department of Glass producing Machines and Robotics and deputy head of this department too. In the years 2012 - 2021 he was the deputy manager of Department of Mechatronic Systems, Technical University of Liberec, the Institute for Nanomaterials, Advanced Technologies and Innovations, where he focused on problematic of a design of specific machines and devices, robots, effectors, drive optimization and robot programming.

His activities are generally focused into R&D and educational activities of the department. In detail it contains a design of single-purpose machines, industrial and service robots within its peripheries and automation systems. Significant field is a design of effectors, numerical simulation of non-linear contact tasks in the glass industry, and machine synthesis. Within educational activities it is a realization of subjects: Robots and manipulators, Electro-pneumatic drives, Automatic manipulation, Robot design, Robotic effectors, Design Project and Robotics for Healthcare studies. In this time the main research activities are focused on:

- Design of single-purpose machines and devices.
- Research and development of specific service robots.
- Robotic effectors.
- Programming robots and PLC.
- Synthesis of electro-pneumatic circuits, designs of pneumatic power and control parts of circuits and safety in pneumatic systems.
- Computer simulation of contact tasks and production processes with a focus on glass production technology.

He has partial experience with commercialization of results achieved in research and development in making contacts with industrial partners. In the last years he attended trainings focused on the issues of intellectual property protection and he gained an overall overview of knowledge applicable in the preparation and implementation of utility models and patent documentation, was a member of research teams in projects financed from public, as well as private sources (cooperation with prominent companies such as AGC Flat Glass Czech, ŠKODA AUTO, Sklostroj Turnov CZ, etc.), where he was responsible for partial results and headed partial investigative teams.



Pavel Srb

Pavel Srb studied at the Faculty of Mechanical Engineering of the Technical University of Liberec, in Czech Republic, where he also obtained his Ph.D. in 2018. He is currently an assistant professor at the Department of Machine Parts and Mechanism

The main research tasks he covers relate to design of machines and their parts in various area of mechanical engineering, focusing especially on the development of light constructions using composite materials. His work also deals with numerical simulations of machine parts. In his teaching work, he focuses on basic knowledge related to machine design, subject such as: technical drawing, CAD, design exercises, machine parts and mechanisms.

He is author or co-author of more than 20 journal and conference papers. He is a member of research teams dealing with projects focused on e.g. electromobility, sensory components, sensory materials.

Recent projects where he is a member of the research team:

- Modular platform for autonomous chassis of specialized electric vehicles for freight and equipment transportation
- Distributed Artificial Intelligent Systems
- Advanced Self-Sensing Materials for Critical Components of Rail Vehicles
- Graphene / graphite-filled carbon fiber-reinforced composite designed especially for battery protection boxes in electric cars