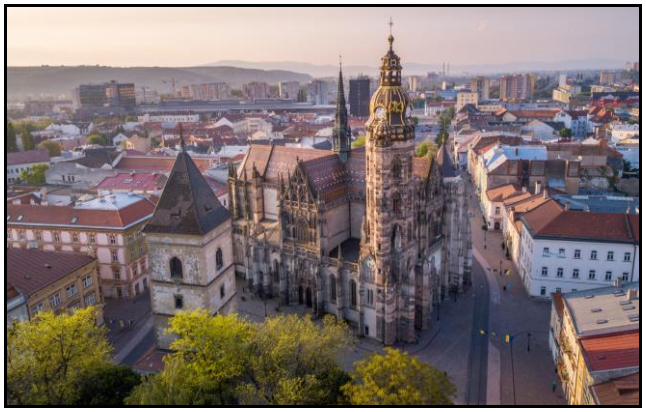
Conference Venue

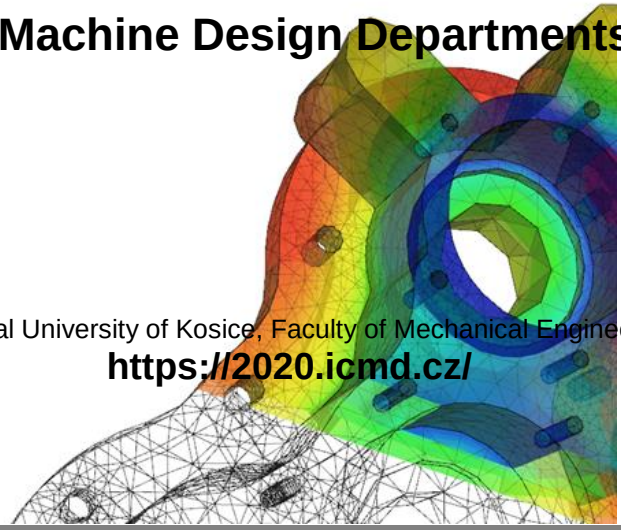
Conference ICMD 2020 is organized by Technical University of Košice in cooperation with Department of the Design Machine Elements and Mechnism, Faculty of Mechanical Engineering, Technical University of Liberec, and Department of Mechanical Engineering, Faculty of Engineering, Czech University of Life Sciences Prague. Conference ICMD 2020 will be held online on 2nd December 2021



Virtual parallel sessions

December 2, 2021
Kosice, Czech Republic

61th International Conference of Machine Design Departments



Technical University of Kosice, Faculty of Mechanical Engineering

https://2020.icmd.cz/

ICMD 2020 is the 61st International Conference of Machine Design Departments which is mainly focused on sharing professional experience and discussing new theoretical and practical findings. The objective of the conference is to identify the current situation, exchange experience, establish and strengthen relationships between universities, companies and scientists from the field of Machine Design.

Conference topics
Papers classified by the scientific committee will be presented in parallel sessions relevant to the following topics:

Machine Design
Tribology
Hydraulics, Fluid Mechanisms
Engineering Analyses
Modern Material and Technology
Optimization and Design
Product Innovation
Experimental Methods and Measuring
Nanotechnology
Biomechanics
Other related topics

Programme Committee

Chairman
Prof. Ing. Jaroslav Homisin, CSc.

Members
Prof. Ing. David Herak, Ph.D., Doc. Ing. Michal Petrů, Ph.D.,
Doc. Ing. Petr Lepšík, Ph.D., Ing. Pavel Srb, Ph.D., Ing. Oldrich Dajbych, Ph.D.

December 2, 2021

$8^{.00}$ – $10^{.30}$	Plenary Session (window A)
$10^{.30}$ – $17^{.30}$	Section Meetings (window A, B, C)
$17^{.30}$ – $18^{.00}$	Conference closing (window A)

Access via Google Meet:
Window A: meet.google.com/fbs-xavx-smj
Window B: meet.google.com/yae-umia-acv
Window C: meet.google.com/ebi-fwtn-ftb

8^{00}- 10^{30} Plenary Session (Window A)
Chairman: Prof. Ing. Jaroslav Homisin, CSc.

Prof. Ing. Ladislav ŠEVČÍK, CSc. (CZ)
Welded and bolted frames of freight electric vehicles
Prof. Dr. Ing. H. Haberhauer – University of Applied Sciences Esslingen (GER)
Approach for analyzing of tolerance for mechanical parts
Prof. Dr. hab. Ing. Zbigniew Matuszak – Maritime University of Szczecin (PL)
Development of Marine Main Diesel Engine Energy Balance - Present time and future
Prof. Eric Coatanéa, PhD., M.Sc. – Aalto University (FIN)
A tool for searching for physical contradictions
Prof. Ing. Slavomír Hrček, PhD. – University of Zilina (SK)
Algorithm to Calculate Frictional Power Loss Between Bodies During Rotation Under Contact Stress

10^{30}- 12^{30} Machine Design (Window A)
Chairman: Prof. Ing. Vojtěch Dynybyl, Ph.D.

Petr LEPŠÍK
Innovation of Car Seat Measurement Device
Petr LEPŠÍK
Design of Low-Cost Three-Axis Actuation System
Ales LUFINKA
Testing device for biaxial lading of textile specimens
Ján GALÍK

Plastic Waste Shredder
Ladislav ŠEVČÍK
Design of load carrier composite reinforcement of zero generation of electric car frame
Tomáš GAJDOŠÍK
The Design of the Unique Equipment for Verification and Calibration of Axels and Cranes Scales

13^{00}- 15^{00} Machine Design (Window A)

Chairman: Doc. Ing. Michal Petru, Ph.D.

Bishwajith BANGALORE NAGARAJ
Optimization in Design for Special Fireman Protection in Rapid High Temperature Shock
Radka JÍROVÁ
Pneumatic Suspension of the Forging Hammer
Jan KANAVAL
Hydraulic Manipulator of Injection Molds for Die Casting Design
Tomáš CAPÁK
Autonomous Guided Vehicle such as Mobile Carrier of Technologies
Petr LEPŠÍK
Design of Hydraulic Quick Coupling Using DFA Lucas
Petr LEPŠÍK
Innovated Testing Equipment and the Influence of Two-Axis Loading on Comfort of Car Seats

15^{30}- 17^{30} Optimization and Design (Window A)

Chairman: Prof. Ing. Ladislav Sevcik, CSc.

Lukáš HRUZÍK
APPLICATIONS OF A CLAMPING JOINT IN A RAIL VEHICLE DESIGN
Filip JENIŠ
Mechatronically Controlled Bogie of High Speed Train
Jiří ZAČAL
Circular Flange Joints of Pressure Vessel
Karel PETR
Revision of Spindle Assembly Tolerances for 6-Axis Single-Purpose Grinder

Matej URBANSKÝ
Determining Optimum Air Pressure Value in Pneumatic Flexible Shaft Coupling

10^{30}- 12^{30} Engineering Analysis (Window B)

Chairman: Prof. Ing. Lubomír Pešík, CSc.

Viera KONSTANTOVÁ
Contact Analysis of Large Diameter Bearings
Praveen MALIK
Design and Analysis of Railway Power Pack
Jozef BRONČEK
Adhesion Properties Evaluation of Heat Treated Steel 100Cr6 with Applied DLC Coating
Ľuboš KUČERA
Mechanical Properties of Groove Squared Profiles Made of Carbon Composite Material with Cured Epoxy in Shape Form and by Vacuum
Josef DVORAK
Complex Risk Predictions and Analyses of Designed Technical Product
Lukáš HRUZÍK
Theoretical analysis of the experiment: Changing the axial force in the bolts of the clamping sleeve under its axial load

13^{00}- 15^{00} Engineering Anylysis (Window B)

Chairman: Prof. Ing. Lubos Kucera, Ph. D.

Eliška CÉZOVÁ
Analytical solution of stress redistribution in simple beams
Slavomír HRČEK
Algorithm to Calculate Sliding Velocities for Spherical Roller Bearings
Andrzej HARLECKI
Application of finite element method and MSC Adams software in design process of truck trailers

Pavel SRB
Numeric simulation of part assembly during pressing within assembly production process
Silvia MALÁKOVÁ
Analysis of meshing deformation of spur gearing

15^{30}- 17^{30} Experimental Methods (Window B)

Chairman: Prof. Ing. Slavomir Hrcek, Ph.D.

Petr CIGÁN
Methodology measurement of inclination gears in operation
Frantisek BRUMERCIK
Measurement and Evaluation of the Test Bench with an Open Flow of Mechanical Power for Gearboxes Testing
Jiří STRUŽ
Cardan shaft load and its variation with length
Jiri STRUZ
Design of an experiment verifying the effect of the cardan shaft on the drivetrain vibration
Martin MANTIČ
Experimental measurement of forced skewing of a bridge crane
Peter KAŠŠAY
Static Mechanical Properties of Pneumatic Flexible Shaft Coupling with Wedge Flexible Elements

10^{30}- 12^{30} Modern technology (Window C)

Chairman: Prof. Ing. David Herak, Ph.D.

Dignesh THESIYA
An Effective Development of Residual Stresses in Fused Deposit Modelling (FDM): An overview
Jiří STRUŽ
Modern approaches in the design of measuring equipment
Samuel SIVÁK
Application of CAD programs for a gearing geometric model
Vaclav KUBEC
Possibilities of application of virtual prototyping and 3D printing methods in practice
Igor GAJDÁČ
Modern teaching in the field of measurement, diagnostics and testing of vehicles with alternative propulsion using new technologies

13^{00}- 15^{00} Modern technology (Window C)

Chairman: Prof. Dr. Ing. H. Haberhauer, Ph.D.

Ivana MAZÍNOVÁ
How to Teach Eco Audit for Design
Ladislav NĚMEC
Designing as a problem solving with the use of knowledge and methods DFX - teaching design in context
Miloš NĚMČEK
Contribution to the Determination of the Coefficient KHβ-C According to the Standard ISO 6336
Miloš NĚMČEK
Corrections to the Standard ISO 6336 (Part 1)
Vaclav VANEK
Specific Requirements for Technical Documentation in the Automotive Industry

15^{30}- 16^{50} Modern technology (Window C)

Chairman: Prof. Ing. David Herak, Ph.D.

Lukáš KLAPETEK
THE EFFECT OF HELICAL GEARS PARAMETERS ON SPECIFIC SLIDING
Daniela HARACHOVÁ
Influence of deformation of spring wheel on the quality of harmonic gearbox
Viera KONSTANTOVA
Use of Biomimicry Thinking Methods in the Design of a Modular Vehicle Concept