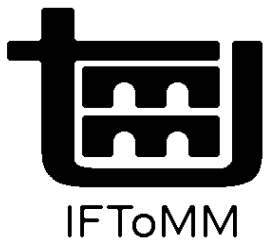


TECHNICAL UNIVERSITY OF LIBEREC

Department of Textile Machine Design



XIV. International Conference

**on the Theory of Machines
and Mechanisms**

PROGRAMME

September 3 – 5, 2024

LIBEREC, CZECH REPUBLIC

By accrediting of Czech Committee IFToMM,
The International Federation for the Promotion of Mechanism and Machine Science

XIV. International Conference on the Theory of Machines and Mechanisms

September 3 – 5, 2024, Liberec, Czech Republic

The conference is organized under the patronage of



Czech National Committee for the Theory of Machines
and Mechanisms IFToMM



Czech Society for Mechanics



VÚTS, a.s., Liberec, Czech Republic

Conference sponsors

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TU Liberec tel.: + 420 48 535 3173

Please note that the conference programme may be subject to change

Version 2024-09-02

PROGRAMME

All times are expressed as Central European Summer Time – CEST.

3rd September 2024	9:00 – 10:00	Registration
Tuesday	10:00	Opening Ceremony
	10:30 – 12:00	Session 1
	12:00 – 12:30	Lunch Break
	12:30 – 14:30	Session 2
	14:30 – 15:00	Coffee Break
	15:00 – 17:00	Session 3
	17:30	Culture Programme
4th September 2024	8:30 – 10:00	Session 4
Wednesday	10:00 – 10:30	Coffee Break
	10:30 – 12:30	Session 5
	12:30 – 13:00	Lunch Break
	13:00 – 15:00	Session 6
	15:00 – 15:30	Coffee Break
	15:30 – 17:00	Session 7
	19:00	Banquet
5th September 2024	9:00	Excursions
Thursday	12:00 – 13:00	Lunch Break

3rd September 2024

Session 1

Room G312

10:30 – 12:00

Chairman:

Miroslav Václavík

Hüsing Mathias, Corves Burkhard, Knobloch Thomas, Brünjes Vincent

***KEYNOTE TALK: THE SOFTWARE MECHANISM DEVELOPER - NOW
AVAILABLE FOR EDUCATION AND INDUSTRY***

***Terada Hidetsugu, Makino Koji, Sun Xiao, Ishida Kazuyoshi, Tagaya Itsuki, Saito Takeshi*
*IMPROVED DESIGN OF A DISCONTINUOUS SHAPED ROLLER-CHAIN DRIVE-
TYPE WAVE MOTION REDUCER***

Ceccarelli Marco

***CONCEPTS FOR ALGEBRAIC FORMULATION OF WORKPLACE OF PARALLEL
MANIPULATORS .***

12:30 – 14:30

Chairman: *Mathias Hüsing**Chesnot Arthur, Arakelyan Vigen***DESIGN AND ANALYSIS OF A TORQUE-COMPENSATED SPATIAL 3-DOF MANIPULATOR***Lee Jyh-Jone, Kuo I-Hsuan, Lin Cian-Ru, Wang Mian-Li***MOTION ANALYSIS OF ROD-DRIVEN CONTINUUM ROBOTS***Ondrášek, Jiří***METHOD FOR DETERMINING THE INFLUENCE OF SURFACE TREATMENTS ON THE TRIBOLOGICAL PROPERTIES OF BODIES IN ROLLING CONTACT***Qiao Shangling, Zhang Lianqing, Song Hongzhou, Lv Bohan, Zheng Zaiping, Yu Zhiyuan, Wang Sicong***COUPLING MOTION CHARACTERISTICS ANALYSIS OF A 2-DOF CABLE-DRIVEN PARALLEL FOUR-LINKAGE MECHANISM***Beirow Bernd, Nakos Alex, Golze Mark, Vogt Damian, Wirsum Manfred, Schafferus Markus, Sasakaros Marios***FORCED RESPONSE REDUCTION OF A TURBINE IMPELLER***Urbaś Andrzej, Stadnicki Jacek***DYNAMICS OF AN ECCENTRIC CRANK-SLIDER MECHANISM WITH A FLEXIBLE DRIVE AND FRICTIONAL JOINTS**

15:00 – 17:00

Chairman: *Jaroslav Zapoměl**Marzabal Arnau, Zaplana Isiah***CLOSED-FORM INVERSE KINEMATICS SOLUTIONS FOR A CLASS OF SERIAL ROBOTS WITHOUT SPHERICAL WRIST USING CONFORMAL GEOMETRIC ALGEBRA***Hlaváč Vladimír***ACCURACY OF THE INVERSE KINEMATICS OF A PLANAR REDUNDANT MANIPULATOR SOLVED BY AN MLP NEURAL NETWORK***El Banna Ribal***TRANSPORTATION OF OBJECTS ON A HORIZONTAL PLANE IN A LONGITUDINAL DIRECTION APPLYING DYNAMIC DRY FRICTION MANIPULATION***Alexandru Catalin***OPTIMAL DESIGN OF THE TWO-LOOP CONTROL SYSTEM FOR A SINGLE-AXIS SOLAR TRACKER***Dostražil Pavel***CONTROL SYSTEM AND DATA PREPARATION FOR KINETIC SCULPTURE PENDULUM**

8:30 – 10:00

Chairman: *Bernd Beirow**Jonášová Alena, Plánička Stanislav, Vimmr Jan****A PRELIMINARY IN SILICO STUDY OF FLOW-MEDIATED THROMBOSIS IN MEDICAL DEVICES****Tran Huu Nam, Petříková Iva, Marvalová Bohdana****DYNAMIC COMPRESSIVE BEHAVIOR OF AN ANISOTROPIC MAGNETORHEOLOGICAL ELASTOMERIC COMPOSITE****Žák Josef, Hruš Tomáš****DESIGN OF A FLEXIBLE MEMBER IN THE SHED FORMING MECHANISM OF A WEAVING MACHINE****Zbončák Radek****STRESS ANALYSIS OF THE COMPOSITE DISC WITH INSERTS OF AN INDEXING GEARBOX TURRET FOLLOWER****Sann Samnang, Elias Tomeh, Petr Tomáš, Zvolský Tomáš, Voženílek Robert****EARLY-STAGE DETECTION OF ENGINE AND TRANSMISSION USING ORDER ANALYSIS***

10:30 – 12:30

Chairman: *Hidetsugu Terada**Lovasz Erwin-Christian, Ceccarelli Marco, Tulcan Elida-Gabriela, Oarcea Alexandru, Silaghi-Perju Dan-Cristian, Carmen Sticlaru, Buncianu Dorel****KEYNOTE TALK: MECHANISM DESIGN FOR MECHATRONIC****Zapoměl Jaroslav, Kozánek Jan, Koláček Jan****RESPONSE OF A VERTICAL FLEXIBLE ROTOR SUPPORTED BY SUPERCONDUCTING BEARINGS ON EXCITATION CAUSED BY THE DISC UNBALANCE****Šnábl Pavel, Pešek Luděk, Procházka Pavel, Prasad Chandra Shekhar****COMPUTER-AIDED ENGINEERING IN THE DESIGN OF AN EXPERIMENTAL BLADE CASCADE FOR FLUID-STRUCTURE INTERACTION STUDIES****Natarajan Venkatachalam, Palanisamy Palaniappan, Vignesh Sasidaran, Thirunavukkarasu Ganesan, Raghu Thukaram, Sankar Ramasubbu****DEVELOPMENT OF A NEW SPINNING SYSTEM FOR SPINNING OF HARD TEXTILE FIBRES***

13:00 – 15:00

Chairman: *Jaroslav Zapoměl*

Škopek Karol, Musil Miloš, Úradníček Juraj, Gašparovič Euboš, Milata Michal
**THE USE OF TORSION PENDULUM DAMPERS IN THE DRIVETRAIN SYSTEMS
OF PASSENGER CARS**

Friedrich Ondřej, Valtera Jan, Beran Jaroslav, Žabka Petr, Komárek Jiří
**ELECTROSPUN NANOFIBER YARN CONTINUOUS PRODUCTION - ANALYSIS OF
TECHNOLOGICAL POSSIBILITIES TO ENHANCE ITS EVENNESS**

Komárek Jiří, Klogner Vojtěch, Friedrich Ondřej
MODELING OF ELECTROMECHANICAL NEEDLE GRIPPING SYSTEM

Antoš Jaroslav, Bušek Martin
ROBOTIC 3D LASER CUTTING OF TEXTILES

Bílkovský Aleš
GLOBOIDAL CAM - MANUFACTURING COORDINATES ON 5-AXIS MACHINE

Matúšek Ondřej, Stará Marie, Kehlerová Gabriela, Švejcar Filip
ROBOCASTING OF GLASS-CERAMIC MATERIAL PGP

15:30 – 17:30

Chairman: *Iva Petříková*

Konečný Martin
**ANALYSIS OF THE IMPACT MECHANISM OF THE "SINGLE HAMMER" TYPE
IMPACT WRENCH**

Žabka Petr, Doležal Jan
OVERLOAD PROTECTION TABLE FOR ROBOTIC APPLICATIONS

Fišer Pavel, Urbánek Jindřich
MACHINE FOR GRINDING THE FACET OF FORMING PUNCHES

Bílek Martin, Kovář Šimon, Skřivánek Josef, Komárek Jiří
**THEORETICAL ANALYSIS AND EXPERIMENTAL VERIFICATION OF HEDDLES
MOTION**

Milučský Ján, Žabka Petr, Bárta Michal
**DAMPING CHARACTERISTICS IDENTIFICATION FOR CUSTOM-MADE
WINDING DEVICE**

Konečný Martin, Kovář Šimon
**MECHATRONIC SYSTEM OF PRESSURE OF THE WORKING CYLINDERS OF
THE MILLING MACHINE**

GENERAL INFORMATION

Address:

Technical University of Liberec
Studentská 2
461 17 Liberec
Czech Republic
tel.: + 420 48 535 3173
e-mail: TMM2024@tul.cz

Conference Office:

Technical University of Liberec
Building G, Room 301

Scientific Steering Committee:

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E. CH. Lovasz (ROM)	J. Zapoměl (CZE)
V. Natarajan (IND)	

Registration:

Onsite registration will be confirmed at the entrance hall of the Conference building "G", Studentská 2, Liberec 1: Tuesday 3rd September 2024 9:00 – 10:00.

Information for Speakers:

The official language of the conference is English.
The time allocated for each (non-keynote) presentation is 15 min talk and 5 min questions.
Each lecture room is equipped with computer and data projector.

3rd Floor

