



Transilvania
University
of Brasov

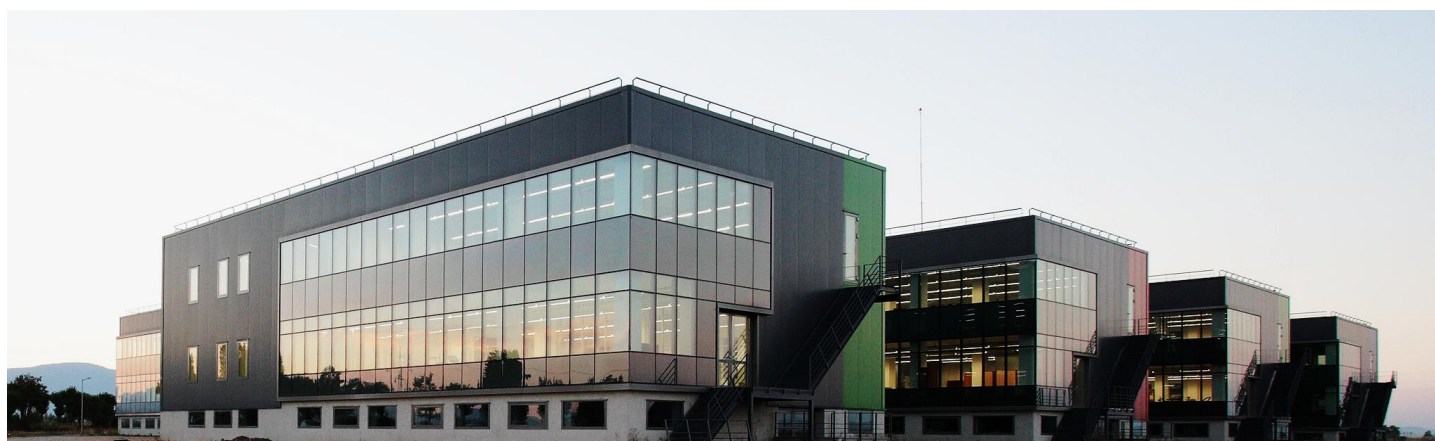


ESEIA
European Sustainable Energy
Innovation Alliance

SYROM 2025

The 14th IFToMM International Symposium on Science of Mechanisms and Machines (SYROM)
Brasov, Romania, October 23 – 25, 2025

CONFERENCE PROGRAMME



The Research and Development Institute of Transilvania University of Braşov (ICDT)
Institutului Street 10, Brasov 500484, Romania

Organized by:

ROMANIAN ASSOCIATION FOR THE SCIENCE OF MECHANISMS AND MACHINES – ARoTMM

TECHNICAL SCIENCES ACADEMY OF ROMANIA – ASTR

and

TRANSILVANIA UNIVERSITY OF BRASOV

RENEWABLE ENERGY SYSTEMS AND RECYCLING R&D CENTRE – RESREC

With the support of:

**INTERNATIONAL FEDERATION FOR THE PROMOTION OF MECHANISM AND
MACHINE SCIENCE – IFToMM**

TECHNICAL COMMITTEE FOR LINKAGES AND MECHANICAL CONTROLS

TECHNICAL COMMITTEE FOR SUSTAINABLE ENERGY SYSTEMS

TECHNICAL COMMITTEE FOR COMPUTATIONAL KINEMATICS

EUROPEAN SUSTAINABLE ENERGY ALLIANCE – ESEIA

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SYROM 2025

Programme at a glance

Wednesday, October 22, 2025	
19.30	Welcome party (PLATINVM Restaurant, 13 Mihai Kogalniceanu Str., Braşov)
Thursday, October 23, 2025 (ICDT, L2)	
08.30–9.00	Participants' registration
9.00–11.00	Opening ceremony
	Plenary sessions 1. IFToMM – Origins, Activities and Visions of our Worldwide Community <i>Andrés Kecskeméthy, Germany</i> 2. Challenges in Mechanism Design for Robotics <i>Marco Ceccarelli, Italy</i>
11.00–11.30	Coffee break
11.30–13.00	Oral presentations: Session 1 – MECHANISMS AND MECHANICAL TRANSMISSIONS (1)
13.00–14.00	Lunch
14.00–15.30	Oral presentations: Session 2 - MECHANISMS AND MECHANICAL TRANSMISSIONS (2)
15.30–16.00	Coffee break
16.00–17.45	Oral presentations: Session 3 - ROBOTICS AND MANIPULATORS (1)
19.30	Gala Dinner (PLATINVM Restaurant, 13 Mihai Kogalniceanu Str., Braşov)
Friday, October 24, 2025 (ICDT, L2)	
9.00–11.00	Plenary sessions
	1. Past, Current and Future Research Topics in Parallel Robotics with Special Emphasis on Delta Robotics Research at IGMR, RWTH Aachen University <i>Burkhard Corves, Germany</i> 2. Service Robotics and its Impact on SDG <i>Giuseppe Quaglia, Italy</i>
11.00–11.30	Coffee break
11.30–13.00	Oral presentations: Session 4 - ROBOTICS AND MANIPULATORS (2)
13.00–14.00	Lunch
14.00–16.00	Oral presentations: Session 5 - MACHINERY AND MECHATRONIC SYSTEMS
16.00–16.30	Closing Ceremony
16.30–18.00	Visit in the Research Institute of Transilvania University of Brasov
Saturday, October 25, 2025	
9.00–13.00	Social program (excursion to Dracula Castle)

SESSION 1: MECHANISMS AND MECHANICAL TRANSMISSIONS (1)

Thursday, October 23, 2025
Room ICDT - L2, 11.30-13.00

Chairmen: Prof. Andrés KECSKEMÉTHY and Prof. Qiaode Jeffrey GE

Paper ID	Title of the papers and authors	Hours
02	Structural Analysis of Some Windshield Wiper Mechanisms <i>Daniela Antonescu, Margareta Strîmbeanu, Ovidiu Antonescu, Daniel Strîmbeanu, Păun Antonescu</i>	11.30 - 11.45
03	Design of Flexure Hinge based on Explicit Structural Topology Optimization <i>Jierong Li, Benliang Zhu, Zhenfeng Wu, Yang Shen, Andrés Kecskeméthy, Xianmin Zhang</i>	11.45 - 12.00
09	Scotch-Yoke Spring Linkage used for Balancing the Wheelchair Back- and Footrest <i>Ioan-Emil Popescu, Erwin-Christian Lovasz, Marco Ceccarelli, Adelin Vasile Filimon, Cristian Pop, Robert Kristof</i>	12.00 - 12.15
10	Optimal Synthesis of a Symmetrical Seven-Bar Linkage's Kinematic Design <i>Elida-Gabriela Tulcan, Carmen Sticlaru, Alexandru Oarcea, Melania-Olivia Sandu, Erwin-Christian Lovasz</i>	12.15 - 12.30
24	A Two-Stage Algorithm for Approximate Motion Synthesis of Planar Four-Bar Linkages for Size-Dependent Rigid-Body Guidance <i>Huan Liu, Zhijie Lyu, Anurag Purwar, Qiaode Jeffrey Ge</i>	12.30 - 12.45
35	On the Kinematic Optimization of a Planetary Speed Increaser for a Reconfigurable Counter-Rotating Wind System <i>Mircea Neagoe, Radu Gabriel Săulescu, Paul Andrei Ivan</i>	12.45 - 13.00

SESSION 2: MECHANISMS AND MECHANICAL TRANSMISSIONS (2)

Thursday, October 23, 2025
Room ICDT - L2, 14.00-16.00

Chairmen: Prof. Oleksandr SIVAK and Prof. Daniela TARNIȚĂ

Paper ID	Title of the papers and authors	Hours
17	Influences of Overweight on Stress Distribution in Menisci of Healthy and Osteoarthritic Knee Models <i>Daniela Tarniță, Marius Cătana, Ionuț Daniel Geonea, Gabriela Marinache, Dănuț Nicolae Tarniță</i>	14.00 - 14.15
27	Dynamic Analysis in MSC.ADAMS of Two Pantograph Mechanisms used in Lower Limb Rehabilitation Exoskeletons <i>Ionuț Daniel Geonea, Laurențiu Răcilă, Alina Elena Romanescu, Gabriela Marinache, Daniela Tarniță</i>	14.15 - 14.30
28	Design Optimization of a Bioinspired Robotic Leg with Biarticular Actuation <i>Oleksandr Sivak, Krzysztof Mianowski, Karsten Berns</i>	14.30 - 14.45
30	Kinematic Optimization of a Polycentric Prosthetic Knee Joint through Multibody Modeling <i>Gabriela Marinache, Ionuț Daniel Geonea, Daniela Tarniță</i>	14.45 - 15.00
40	Mechanical Design and Simulation of a New Ankle Rehabilitation Device. Part I: Mechanical Design <i>Ioan Doroftei, Cristina-Magda Cazacu, Vitalie Coadă</i>	15.00 - 15.15
39	Mechanical Design and Simulation of a New Ankle Rehabilitation Device. Part II: Simulation Results <i>Cristina-Magda Cazacu, Ioan Doroftei, Vitalie Coadă</i>	15.15 - 15.30

SESSION 3: ROBOTICS AND MANIPULATORS (1)

Thursday, October 23, 2025
Room ICDT - L2, 16.00-17.45

Chairmen: Prof. Burkhard CORVES and Prof. Erwin-Christian LOVASZ

Paper ID	Title of the papers and authors	Hours
07	Robotic System for Assisted Locomotion of People with Lower Limb Disability <i>Marius Pandelea, Adina-Mihaela Struț, Adrian Niță, Mihaela Iliescu</i>	16.00 - 16.15
11	Mobile Robot for Inspection of Circular Rectilinear Pipes <i>Iulia-Andreea Cardoș, Erwin-Christian Lovasz, Carmen Sticlaru, Robert Kristof</i>	16.15 - 16.30
12	The Evolution of Hybrid Locomotion Systems in Robotics: Statistical Analysis and Publication Trends <i>Debora-Gabriela Buleandră, Andrei-Ovidiu Băneasă, Mihai-Olimpiu Tătar</i>	16.30 - 16.45
15	Literature Review of Mobile Robots with Reconfigurable Whegs-Wheel Locomotion Units <i>Francisc Kadar, Mihai-Olimpiu Tătar</i>	16.45 - 17.00
23	Mobile Robot for Exploration: A Bibliometric Analysis <i>Antonio Ioan Banabic, Mihai-Olimpiu Tătar</i>	17.00 - 17.15
18	Development of an Innovative Parallel Robot used in Laparoscopic Pancreatic Surgery <i>Alexandru Pușcă, Florin Covaciu, Alin Burz, Alin Horsia, Pierre Mougénot, Adrian Pîslă, Jefe Nagy, Nicoleta Pop, Ionuț Zima, Damien Chablat, Ranjan Jha, Bogdan Gherman, Tiberiu-Alexandru Antal, Doina Pîslă</i>	17.15 - 17.30
25	Conceptual Design of a Multi Degrees of Freedom Single Port Surgery Robot Manipulator <i>Mustafa Volkan Yazıcı, Erkin Gezgin</i>	17.30 - 17.45

SESSION 4: ROBOTICS AND MANIPULATORS (2)

Friday, October 24, 2025
Room ICDT - L2, 11.30-13.00

Chairmen: Prof. Giuseppe QUAGLIA and Prof. Ionel STAREȚU

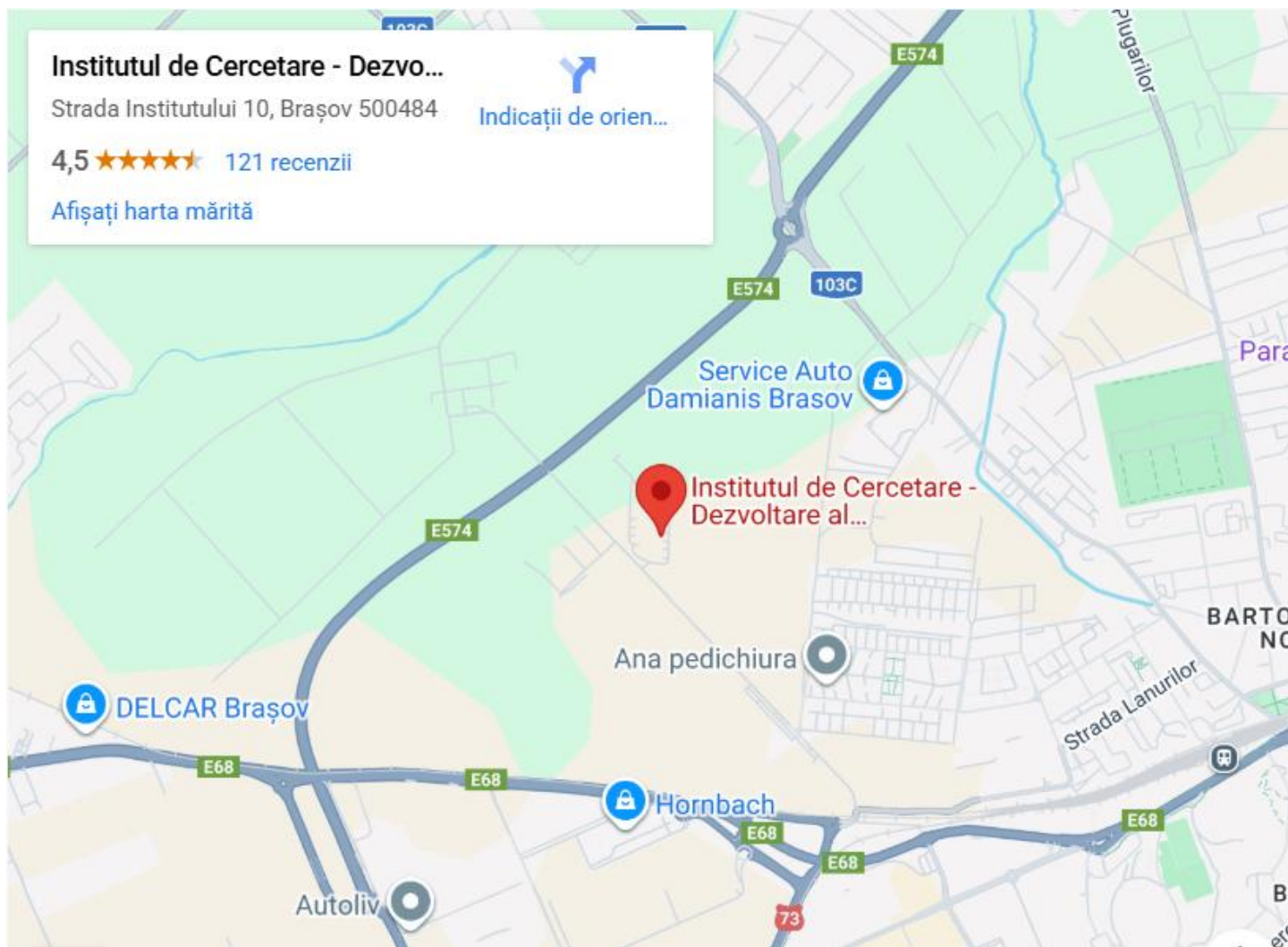
Paper ID	Title of the papers and authors	Hours
05	Design, Calibration and Testing of the Command and Control System of a Self-Adaptive Gripper <i>Cezar Frîncu, Ioan Stroe, Ionel Starețu</i>	11.30 - 11.45
08	Automated Optical Inspection Cell with Delta Robot for Printed Circuit Board Assemblies <i>Sonia-Luiza Oprean, Corina-Mihaela Gruescu, Karla-Elisabeth Lovasz</i>	11.45 - 12.00
13	Inverse Positional Kinematic of the Robot UR-10e used for Automated Pipetting in PCR Laboratory <i>Melania-Olivia Sandu, Elida-Gabriela Tulcan, Corina Mihaela Gruescu, Erwin-Christian Lovasz, Valentin Ciupe, Robert Kristof, Carmen Sticlaru</i>	12.00 - 12.15
20	Design of Cooperative Robotic Arms with Increased Workspace for Unknown Extreme Environments Exploration <i>Aggelos Iliakis, Panagiotis Koustoumpardis</i>	12.15 - 12.30
26	Design and Development of a Single DoF Mechanism for a Robot Manipulator Gripper that Manipulates Soft Sheet Materials under Adhesive and Electrostatic Forces <i>Ömer Yüce, Mustafa Volkan Yazıcı</i>	12.30 - 12.45
31	The 3R Serial Robot's Optimal Synthesis based on Kinematic Performance Measures <i>Alexandru Oarcea, Elida-Gabriela Tulcan, Orest-Gheorghe Bădărașu, Robert Kristof, Erwin-Christian Lovasz</i>	12.45 - 13.00

SESSION 5: MACHINARY AND MECHATRONIC SYSTEMS

Friday, October 24, 2025
Room ICDT - L2, 14.00-16.00

Chairmen: *Prof. Mustafa Volkan YAZICI and Prof. Ioan DOROFTEI*

Paper ID	Title of the papers and authors	Hours
04	A Study on Effects of an Eccentric Phase Difference between Two Discs on Nonlinear Dynamics in a Rotor-Stator Contact System <i>Daijiroh Yoshimori and Yoshiki Sugawara</i>	14.00 - 14.15
06	Mechatronic Engineering the Foundation of Sustainable Development <i>Dănuț Pop, Simona Noveanu, Vistrian Mătieș</i>	14.15 - 14.30
22	Implementation of a Gamified Mechatronics System for Human Locomotion Exercises <i>Mertcan Koçak, Melissa Köprülüoğlu Koç, İlknur Naz Gürşan, Erkin Gezgin</i>	14.30 - 14.45
29	Active learning in Mechanism and Machine Science Classes <i>Simona-Mariana Crețu, Ionuț Daniel Geonea</i>	14.45 - 15.00
32	Compact and Cost-Effective EMG Acquisition Systems for Neuroprosthetic Control. Part I: Theory Review on Biophysics, Noise and Signal Processing <i>Radu-Octavian Sandu, Dănuț-Constantin Irimia, Ioan Doroftei</i>	15.00 - 15.15
33	Compact and Cost-Effective EMG Acquisition Systems for Neuroprosthetic Control. Part II: Prototype Development, Experimental Evaluation and Comparative Analysis <i>Radu-Octavian Sandu, Dănuț-Constantin Irimia, Ioan Doroftei</i>	15.15 - 15.30
34	Automation of Snow Removal Equipment <i>Mircea Munteanu, Erwin-Christian Lovasz, Eugen-Sever Zăbavă, Robert Kristof</i>	15.30 - 15.45
37	Spherical 3D Printer for Facial Reconstruction of Skulls <i>Lucian-Mihai Micle, Ana-Maria Scurt, Erwin-Christian Lovasz</i>	15.45 - 16.00



Conference location:

R&D Institute of the Transilvania University of Brasov
 10 Institutului Street, 500484 Braşov, Romania
 Building L2
 R&D Centre Renewable Energy Systems and Recycling
 Laboratory Building L7
 45.669855128098085°N, 25.550081290789574°E

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