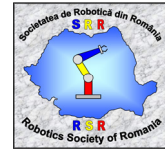




TC17



International CBRNE Institute



Advancing Technology
for Humanity
Galveston Bay Section

ISMCR 2023

25th International Symposium on Measurement and Control in Robotics
Iasi, Romania, September 21 - 22, 2023

SYMPOSIUM PROGRAM



Organized by:

**Department of Mechanical Engineering, Mechatronics and Robotics at “Gheorghe Asachi” Technical University of Iasi, Romania (TUIASI), and
Technical Sciences Academy of Romania - ASTR**

Under the Patronage of IMEKO – TC17

**International Measurement Confederation, Technical Committee 17 – Measurement in
Robotics**

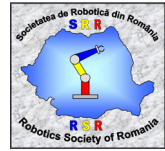
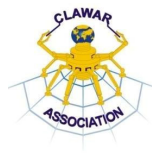
With the support of:

**International CBRN Institute
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**Romanian Association of Mechanism and Machine Science - ARoTMM
Robotics Society of Romania– SRR
IEEE Galveston Bay Section**



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for Humanity
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ISMCR 2023

25th International Symposium on Measurement and Control in Robotics
Iasi, Romania, September 21 – 22, 2023

SYMPOSIUM PROGRAM OUTLINE

Wednesday, September 20, 2023

18:00 – 20:00 Get Together (Moldova hotel)

Thursday, September 21, 2023

09:00 – 09:30 Participants registration

09:30 – 10:00 Welcome, Opening Addresses

10:00 – 13:00 Plenary Session (TUIASI Aula)

1. **Robotics assistance in risky or conflictual situations: may the European Defence effectively contribute to such aims?**
Yvan BAUDOIN, Jean MARSIA, Belgium
2. **Autonomous Shuttle for Pedestrian Zones**
Karsten BERNS, Germany
3. **Advances Representation of Higher-Order Kinematics of Motion. Hypercomplex Lie Groups and Lie Algebras**
Daniel CONDURACHE, Romania
4. **Recent Advances in Medical Robotics**
Doina PISLA, Romania

13:30 – 14:30 Lunch Break (Eden restaurant)

15:00 – 16:20 Sections Session (Mechanical Engineering, Mechatronics and Robotics Department - IMMR Dep., 1st floor; for location, see detailed program)

16:20 – 16:40 Coffee Break

16:40 – 18:00 Sections Session (IMMR Department)

19:00 Conference Gala Dinner (Ramada hotel)

Friday, September 22, 2023

09:00 – 10:20 Sections Session (IMMR Department)

10:20 – 10:40 Coffee Break

10:40 – 12:20 Sections Session (IMMR Department)

12:20 – 12:30 Conference Closing Ceremony (IMMR Department)

13:30 – 14:30 Lunch (Eden restaurant)

Symposium Chair

Prof. Ioan Doroftei (Romania)

Symposium Co-Chair

Prof. Yvan Baudoïn (Belgium)

Program Chair

Prof. Alexandru Salceanu (Romania)

Publication Chair

Assoc. Prof. Balint Kiss (Hungary)

Financial Chair/Treasurer

Assoc. Prof. Ana Tufescu (Romania)

Logistic Chair

Dr. Cristina-Magda Cazacu (Romania)

Logistic Co-Chair

Prof. Simone Keller F uchter (Brazil)

Executive Chair

Dr. Zafar Taqvi (USA)

International Scientific Committee

Dr. Zafar Taqvi (USA)

Prof. Yvan Baudoïn (Belgium)

Assoc. Prof. B alint Kiss (Hungary)

Prof. Simone Keller F uchter (Brazil)

Dr. Fumihiko KATO (Japan)

Prof. Susumu Tachi (Japan)

Prof. Masahiko Inami (Japan)

Prof. Jaromir Volf (Czech Republic)

Prof. C. Ferrero (Italy)

Prof. Toshio Fukuda (Japan)

Prof. Kenneth Thomas Victor Grattan (UK)

Prof. Andrej Maslowski (Poland)

Dr. Zi Xue (China)

Prof. Andrej Babinec (Slovakia)

Prof. Ioan Doroftei (Romania)

Prof. Jean-Guy Fontaine (Italy)

Prof. Lino Marques (Portugal)

Prof. Giovanni Muscato (Italy)

Prof. Jurek Z. Sasiadek (Canada)

Jagdish Shukla (India)

Prof. A. Vimala Juliet (India)

Prof. Yanhe Zhu (China)

Dr. Geert De Cubber (Belgium)

Dr. Gokcen Bas (Austria)

Prof. Gregory Ya. Panovko (Russia)

Prof. Sang-Youn Kim (Korea)

Prof. Daniele Fontanelli (Italy)

Dr. Trung T. Pham (USA)

Organizing Committee

Assoc. Prof. Emil Budescu

Dr. Florentin Buium

Dr. Eugen Merticaru

Dr. Cristina-Magda Cazacu

Session 1 (onsite)

Thursday, September 21, 2023

Chairmen: *Dr. Zafar TAQVI* and *Assoc. Prof. Gincsaíné SZÁDECZKY-KARDOSS*

Paper no.	Title of the papers and authors	Hours	Room
003	Measurement of Loading Characteristics of Conductive Inks at a Robotized Workspace and Development of a Flexible Tactile Sensor <i>¹V. NOVAK, ¹J. VOLF¹, ²D. NOVÁK and ¹V. RYŽENKO,</i> ¹ Czech University of Life Sciences Prague, Czech Republic, ² Matej Bel University Banská Bystrica, Slovakia	15.00 - 15.20	M3 IMMR Dep.
015	Sensor Selection for Mechatronic Systems Based on Closed-Loop Control Simulations <i>¹E. GINCRAINÉ SZÁDECZKY-KARDOSS, ¹T. VARGA-BERTA, ¹B. KISS and ²C. FAZEKAS,</i> ¹ Budapest University of Technology and Economics, Hungary, ² Thyssenkrupp Components Technology Hungary	15.20 - 15.40	
017	Equivalent control of a 2D crane and a 2D drone using exact linearization based on differential flatness <i>B. FINTA and B. KISS,</i> Budapest University of Technology and Economics, Hungary	15.40 - 16.00	
018	LPV-based adaptive control of a 2-DOF robotic arm <i>Z. TÉCZELY and B. KISS,</i> Budapest University of Technology and Economics, Hungary	16.00 - 16.20	

COFFEE BREAK: 16.20 – 16.40

Session 2 (onsite)

Thursday, September 21, 2023

Chairmen: *Dr. Jean MARSIA* and *Prof. Adrian BURLACU*

Paper no.	Title of the papers and authors	Hours	Room
025	Human-Machine Interfaces for Industrial Robot Control: A Comprehensive Review of the State of the Art <i>R. KRISTOF and C. MOLDOVAN,</i> Politehnica University Timisoara, Romania	16.40 - 17.00	M3 IMMR Dep.
014	An evaluation of the dual vectors based solutions for robot-world/hand-eye calibration <i>A. GANCIU and A. BURLACU,</i> “Gheorghe Asachi” Technical University of Iasi, Romania	17.00 - 17.20	
012	Soft Robotics: A Numerical Evaluation of Model-Based PneuNet Simulation <i>F.A. BRASOVEANU and A. BURLACU,</i> “Gheorghe Asachi” Technical University of Iasi, Romania	17.20 - 17.40	
023	A simplified-model Predictive Controller Design for a Four-wheel Omnidirectional Robot <i>R. MOCANU, S. ACHIREI, C. DOSOFTEI and T. POPOVICI,</i> “Gheorghe Asachi” Technical University of Iasi, Romania	17.40 - 18.00	

Session 3 (onsite)

Thursday, September 21, 2023

Chairmen: *Prof. Yvan BAUDOIN* and *Prof. Ioan DOROFTEI*

Paper no.	Title of the papers and authors	Hours	Room
010	Kinematic performance analysis of the 3-U(RPRGR)RU parallel robot <i>A. OARCEA, E.G. TULCAN and E.C. LOVASZ</i> , Politehnica University Timisoara, Romania	15.00 - 15.20	M4 IMMR Dep.
009	Design of a 3D Printer with Five-Bar Linkage ¹ <i>D. TIVADAR</i> , ¹ <i>E.C. LOVASZ</i> , ² <i>M. CECCARELLI</i> , ¹ <i>M. RUSSO</i> , ¹ <i>E.G. TULCAN</i> and ¹ <i>A. OARCEA</i> , ¹ Politehnica University Timisoara, Romania, ² University of Roma Tor Vergata, Italy	15.20 - 15.40	
011	Workspace Analysis of a 3 RRR Planar Mechanism <i>F. BUIUM</i> and <i>I. DOROFTEI</i> , "Gheorghe Asachi" Technical University of Iasi, Romania	15.40 - 16.00	
026	Preliminary Functionality Tests of an Improved Ankle Rehabilitation Device <i>C.M. CAZACU</i> and <i>I. DOROFTEI</i> , "Gheorghe Asachi" Technical University of Iasi, Romania	16.00 - 16.20	

COFFEE BREAK: 16.20 – 16.40

Session 4 (online)

Friday, September 22, 2023

Chairmen: *Prof. Balint KISS* and *Prof. Ioan DOROFTEI*

Paper no.	Title of the papers and authors	Hours	Room
002	Enhancing Human Augmentation: Analysis of Behavior Change in Highly Efficient Three-Hand Body after Motor Skill Training <i>P.H. CHEN, N. NISHIDA, Y. IWASAKI and H. IWATA,</i> Waseda University, Tokyo, Japan	09.00 - 09.20	Online
004	NeRF-YOLO: Detecting Occluded Objects via Multi-View Geometric Aggregation <i>M. SZEMENYEI and N. KŐFARAGÓ,</i> Budapest University of Technology and Economics, Hungary	09.20 - 09.40	
005	A fast-acting gripper for Aerial Vehicles <i>G. SUTERA, D.C. GUASTELLA and G. MUSCATO</i> University of Catania, Italy	09.40 - 10.00	
016	On the control architecture and functional validation of the control system for a lower limb rehabilitation robot <i>P. TUCAN, B. GHERMAN, N. TOHANEAN, A. PISLA, O. VANTA, C. VAIDA and D. PISLA,</i> Technical University of Cluj-Napoca, Romania	10.00 - 10.20	

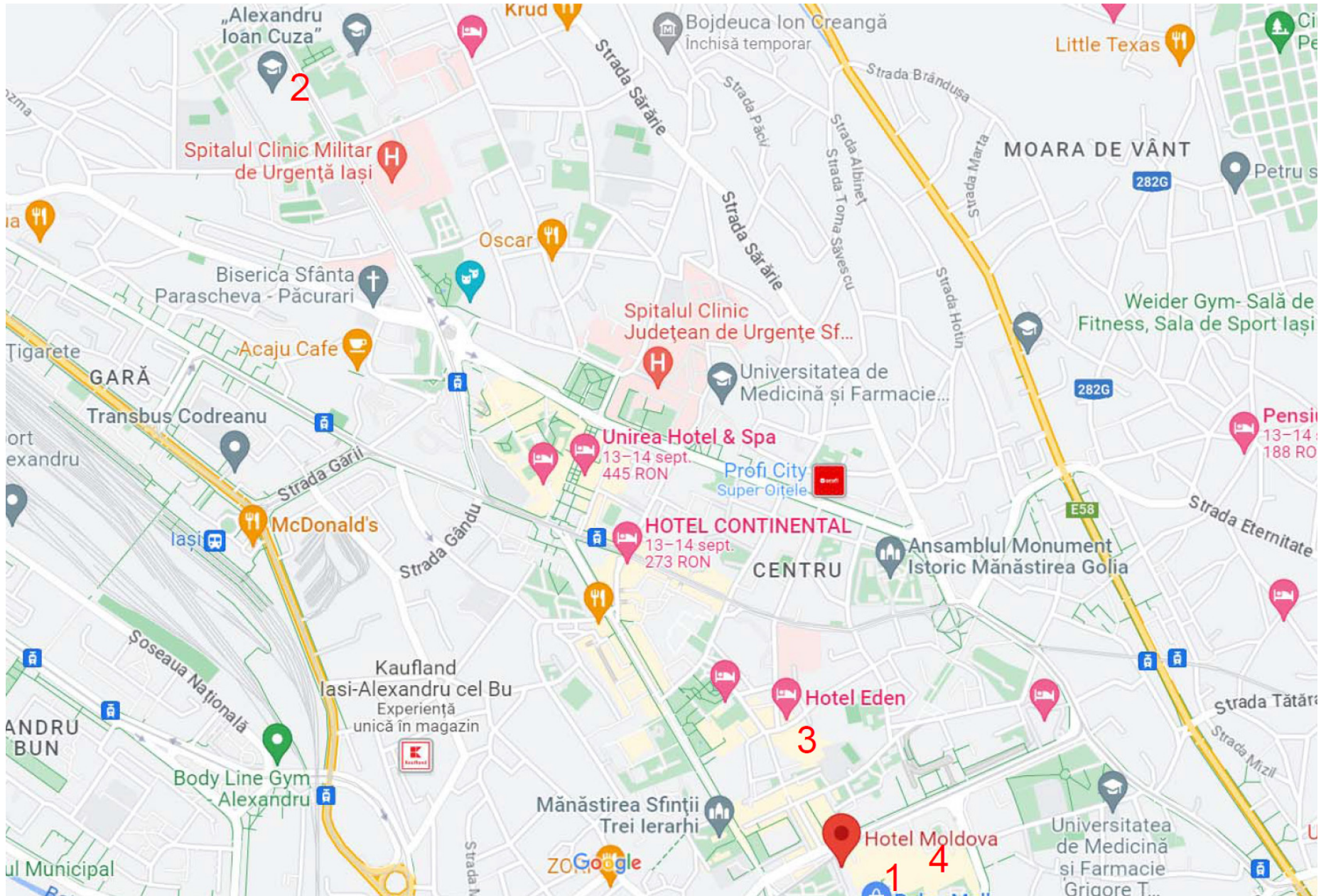
COFFEE BREAK: 10.20 – 10.40

Session 5 (online)

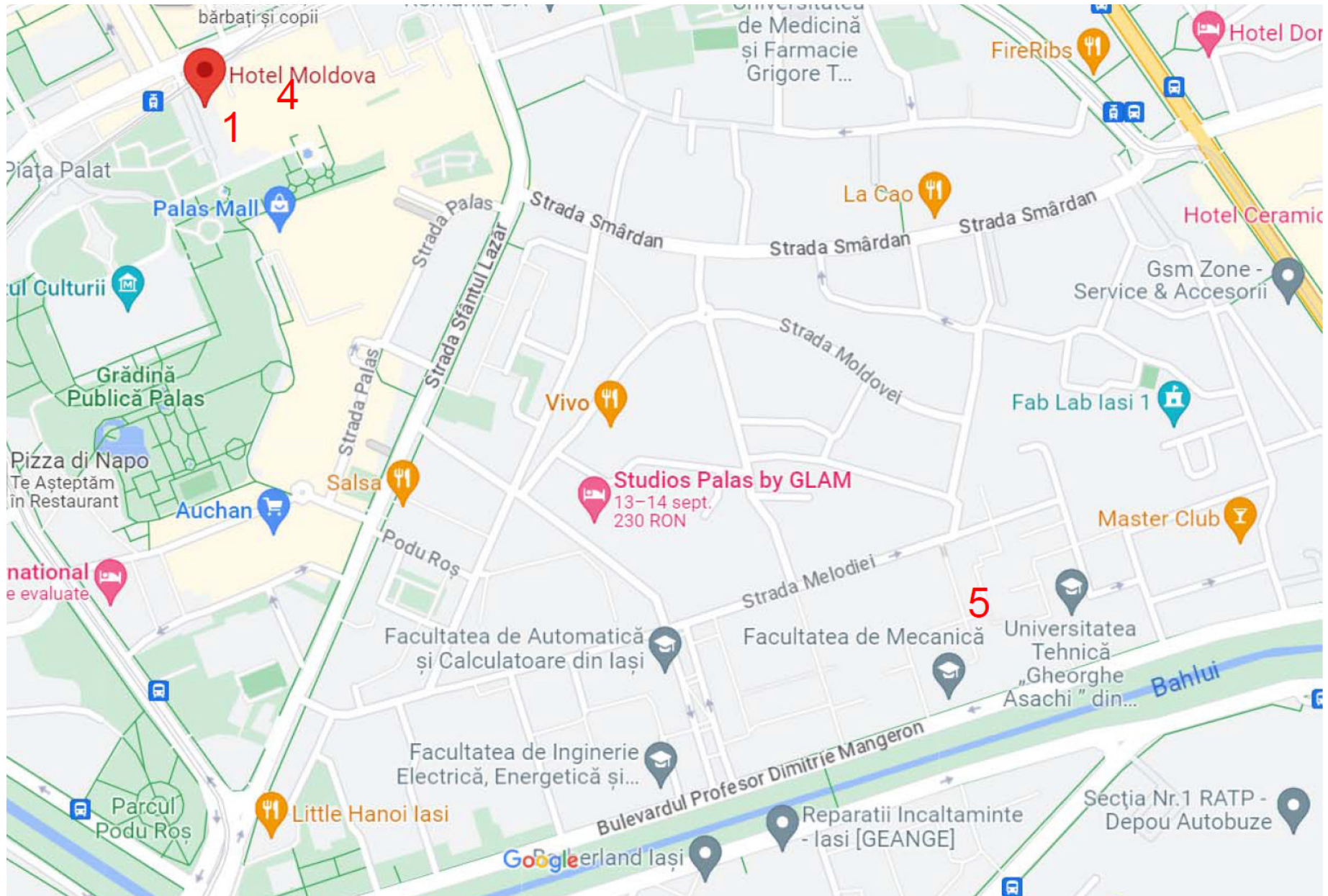
Friday, September 22, 2023

Chairmen: *Prof. Simone KELLER FÜCHTER* and *Dr. Florentin BUIUM*

Paper no.	Title of the papers and authors	Hours	Room
007	Localization of Mobile Robots. Theoretical Aspects <i>M. NITULESCU,</i> University of Craiova, Romania	10.40 - 11.00	Online
024	Comparative Aspects Regarding the Similarities and Differences between Industrial and Collaborative Robots <i>N. JONI,</i> Robcon™ SRL, Timisoara, Romania	11.00 - 11.20	
029	Study of the Load-Response Effect on the Functioning Parameters of NiTi-Based Thermal Actuators (if accepted) <i>A.P. TEODORIU, I. DOROFTEI B. PRICOP and L.Gh. BUJOREANU,</i> "Gheorghe Asachi" Technical University of Iasi, Romania	11.20 - 11.40	
030	Design of a Hybrid Locomotion Mobile Manipulator for Agricultural Application (if accepted) <i>I. DOROFTEI, C.A. MORAR and M.Gh. HAGAN,</i> "Gheorghe Asachi" Technical University of Iasi, Romania	11.40 - 12.00	
027	Learning styles identification and implementation in learning processes using haptic devices (if accepted) <i>E.F. COSNITA, I. TEMPEA and A.D. ALIONTE,</i> Politehnica University of Bucharest, Romania	12.00 - 12.20	



1 – Moldova Hotel; 2 – TUIASI Aula; 3 – Eden Restaurant; 4 – Ramada Hotel



1 – Moldova Hotel; 4 – Ramada Hotel; 5 - IMMR Department