

SYROM 2013
Braşov, November 11-12, 2013

Symposium Programme
University Aula, 41A Iuliu Maniu St., Braşov

Sunday, November 10, 2013

19.00–21.00 Welcome party (ARO Hotel)

Monday, November 11, 2013

08.00–9.00 Participants' registration (Aula foyer)

9.00–11.00 Opening ceremony (Aula)

Plenary sessions (Aula):

Marco Ceccarelli - Mechanism Design for Robots

Baichun Zhang - The Transmission of European Mechanical Knowledge
into 17th-Century China

11.00–11.30 Coffee break (Aula foyer)

11.30-13.30 Oral presentations: Sessions 1, 2 and 4 (Aula rooms)

13.30–14.30 Lunch (Aula foyer)

14.30–16.30 Oral presentations: Sessions 2, 3 and 4 (Aula rooms)

16.30-17.00 Coffee break (Aula foyer)

17.00-19.00 ARoTMM General Assembly (Aula)

19.30 Gala Dinner (ARO Hotel)

Tuesday, November 12, 2013

09.00–10.30 Plenary sessions (Aula):

Vistriian Maties – Integrated Design of the Mechanisms for Mechatronics

Ion Visa - Mechanisms in Building Integrated Renewable Energy Systems:
Case Study—Solar Energy Conversion Systems

10.30–11.00 IFToMM Workshops (Aula rooms):

Technical Committee for Linkages and Mechanical Controls

Technical Committee for Sustainable Energy Systems

11.00 – 11.30 Coffee break (Aula foyer)

11.30–13.00 Oral presentations: Sessions 2, 4 and 5 (Aula rooms)

13.00–13.30 Closing Ceremony (Aula)

13.30–15.00 Lunch (Aula foyer)

15.00-18.00 Visit in the Research Institute of Transilvania University of Brasov
Planning the future: Horizon 2020

SESSION	Chairmen	DAY-TIME-ROOM
1. Conceptual design	Ioan Doroftei Dan Perju	11 Nov. 11.30-13.30 – UI1
2. Kinematic and dynamic modeling and simulation	Victor Petuya Ioan Ardelean	11 Nov. 11.30-13.30 – UI2
	Doina Pisla Elena Mereuta	11 Nov. 14.30-16.30 – UI2
	Alexandru Rus Catalin Alexandru	12 Nov. 11.30-13.00 – UI2
3. Synthesis and optimization	Marco Ceccarelli Iosif Carabas	11 Nov. 14.30-16.30 – UI1
4. Applications in high-tech products	Vistrian Maties Codruta Jaliu	11 Nov. 11.30-13.30 – UI3
	Ion Visa Nicolae Dumitru	11 Nov. 14.30-16.30 – UI3
	Virgil Duma Mircea Neagoe	12 Nov. 11.30-13.00 – UI3
5. Current trends in education	Baichun Zhang Erwin Lovasz	12 Nov. 11.30-12.30 – UI1

- The speakers are kindly invited to contact the Session Chairmen in due advance to confirm their presentation.
- For any query on presentation media, please contact the people of the SYROM Secretariat in due advance.

SECTION 1: CONCEPTUAL DESIGN

11 November, 11.30 – 13.30, room UI1

Chairmen: Ioan Doroftei
Dan Perju

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| 1 | Florentina Adăscăliței, Ioan Doroftei, D. Lefeber, Bram Vanderborght | Conceptual Design of an Expressive Robotic Head |
| 2 | Erwin-Chr. Lovasz, Dan Perju, Karl-Heinz Modler, Niels Modler, Corina Mihaela Gruescu, Inocențiu Maniu, Andrei Comșa | On the Structural Analysis of the Mechanisms with Elastic Connections |
| 3 | Nicolae Plitea, Călin Vaida, Bogdan Gherman, Andras Szilaghyi, Bogdan Galdau, Dragoș Cocorean, Florin Covaciu, Doina Pîslă | An Innovative Family of Modular Parallel Robots for Brachytherapy |
| 4 | Laurențiu Răcilă | One 6R Overconstrained Mechanism, Many Applications |
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SECTION 2: KINEMATIC AND DYNAMIC MODELING AND SIMULATION

11 November, 11.30 – 13.30, room UI2

Chairmen: Victor Petuya
Ioan Ardelean

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| 1. | Ioan Ardelean, Mircea Bara, Sergiu-Dan Stan, Sorin Besoiu | Research Regarding Modeling of Involute-Bevel Gears |
| 2. | Ioan Ardelean, Olimpiu Tătar, Emil Teutan | Research Regarding the Modeling of the Reciprocal Generation of the Involute-Bevel Gears with Crossed Axes |
| 3. | Gani Balbayev, Giuseppe Carbone | A Dynamic Simulation of a Novel Continuous Variable Transmission |
| 4. | Cristian Copiluși, Marco Ceccarelli, Nicolae Dumitru, Giuseppe Carbone | Design and Simulation of a Leg Exoskeleton Linkage for a Human Rehabilitation System |
| 5. | Mikel Diez, Victor Petuya, Imanol Martinez, Alfonso Hernandez | Protein Secondary Structure Detection Using Dihedral Angle Parameters Evaluation |
| 6. | Monica Alina Ioniță, Cătălin Alexandru | Optimal Design of the Motion Law for a Pseudo-Azimuthal Tracking System |
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11 November, 14.30 – 16.30, room UI2

Chairmen: Doina Pîsla
Elena Mereuta

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| 7. | Tiberiu Itul, Bogdan Gherman,
Doina Pîslă | Comparative Study of Two 2-DOF Parallel Mechanisms Used for Orientation |
| 8. | Dan Mărgineanu, Erwin-Christian Lovasz,
Valentin Ciupe, Loredana Ciurdariu | Kinematic and Dynamic Modeling and Simulation of an Intelligent Adaptive CTLSO Brace |
| 9. | Elena Mereuță, Marian Tudoran,
Daniel Ganea, Claudiu Mereuță | Virtual Model For Kinematic Analysis of Human Upper Limb |
| 10. | Elena Mereuță, Marian Tudoran,
Daniel Ganea, Claudiu Mereuță | Estimating The Muscle Force Using a Kinematic Model of the Human Upper Limb |
| 11. | Iulian Negrean, C. Schonstein, K. Kacs,
A. Duca | Formulations in Advanced Dynamics of Mechanical Systems |
| 12. | Ciprian Rad, Olimpiu Hancu,
Ciprian Lăpușan | Gray-Box Modeling and Closed-Loop Temperature Control of a Thermotronic System |
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12 November, 11.30 – 13.00, room UI2

Chairmen: Alexandru Rus
Catalin Alexandru

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| 13. | Radu Săulescu, Olimpiu Munteanu,
Mircea Neagoe, Nadia Crețescu | On The Eccentricity Effects in Solar Tracking Triangular Linkage with Linear Actuator |
| 14. | Iulian Tabără, Constantin Dogariu | Influence of Mechanical Press Dimensions on its Kinematic Behavior |
| 15. | Daniela Tarniță, Marius Catana,
Dan Tarniță | Nonlinear Analysis of Osteoarthritis Process in Virtual Human Knee Joint |
| 16. | Daniela Tarniță, Iulian Popescu,
Dan Marghitu | Creating Artistic Curves with Planar Mechanisms |
| 17. | Vlad Țoțu, Cătălin Alexandru | Optimal Design of the Front Suspension Mechanism used for a Race Car |
| 18. | Tiberiu Vesselenyi, Alexandru Rus, Bogdan
Tătaru, Tudor Mitran | Educational Pneumatic Engine for a Small Size Vehicle |
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SECTION 3: SYNTHESIS AND OPTIMIZATION

11 November, 14.30 – 16.30, room UI1

Chairmen: Marco Ceccarelli
Iosif Carabas

1. Monica Enescu, Cătălin Alexandru **Regression Model for Optimizing the Thin Films Deposition on Planar Photovoltaic Cells**
2. Voicu Mesaros-Anghel, Endre Ianosi, Iosif Cărăbaș, Lucian Mădăras **About Speed Breaker Synthesis with no Deterioration of the Car Suspension**
3. Ionel Starețu **Structural Systematization and Kinematics Analysis of Redundant Kinematic Chains with 7 and 8 Axes for Robots**
4. Ileana Dugăeșescu, Marco Ceccarelli, Adriana Comănescu **A Structural Synthesis of a New Leg Mechanism**

SECTION 4: APPLICATIONS IN HIGH-TECH PRODUCTS

11 November, 11.30 – 13.30, room UI3

Chairmen: Vistrian Maties
Codruța Jaliu

1. Adina Bălan, Mihai Petru Draghici, Radu Donca, Alin Pleșa, Vistrian Mătieș **A Method for Experimental Identification of Nonlinear Mechanical Systems**
2. Daniela Ciobanu, Codruța Jaliu **Innovative Tracking System for Parabolic Dish Solar Collector**
3. Valentin Ciupe, Erwin-Christian Lovasz, Michael Rensing, Veit Henkel, Corina Gruescu, E.S. Zabava **Interactive Animation Production by means of Advanced Image Processing**
4. Mircea Diudea, Victor Hodor, Radu Bălan, Mircea Bara **Vibrations Concerning with Safety in Vehicle Rolling Conditions**
5. Mircea Diudea, Victor Hodor, Radu Bălan, Sorin Zamfira **CFD Prediction of the Flow Inside the Damper, by the Use of LES Model**
6. Mihai Petru Drăghici, Alin Pleșa, Călin Rusu, Radu Bălan, Radu Donca **Control Method Comparison for Pneumatic Artificial Muscle Actuators**

11 November, 14.30 – 16.30, room UI3

**Chairmen: Ion Visa
Nicolae Dumitru**

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| 7. | Virgil-Florin Duma | Advances in Opto-mechanical Scanning Technologies for High-end Biomedical Applications |
| 8. | Nicolae Dumitru, Violeta Cristina Dumitru | Mechatronic System with Applications in Medical Robotics |
| 9. | Codruța Jaliu, Mircea Neagoe,
Radu Săulescu, Edith-Bianca Dobre | Low-Speed Actuator Used in Solar Tracking Systems |
| 10. | Marius Luculescu, Sorin Zamfira,
Luciana Cristea | WiSeIn - Wireless Sensor Network Used for Data Acquisition from Indoor Locations |
| 11. | Marius Luculescu, Sorin Zamfira,
Luciana Cristea | WiSeManS - Wireless Sensor Network Data Management System for Indoor Climatic Control |
| 12. | Macedon Moldovan, Ion Vișa,
Radu Săulescu, Mihai Comșit | Four Bar Linkages with Linear Actuators Used for Solar Trackers with Large Angular Diurnal Strokes |
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12 November, 11.30 – 13.00, room UI3

**Chairmen: Virgil-Florin Duma
Mircea Neagoe**

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| 13. | Radu Papuc, Radu Velicu, Mihai Lateş | Study of the Contact Between Toothed Chains and Guides |
| 14. | Alexandru Schitea, I. Kaposta, Marius Tuef, S.C. Jurca, Virgil-Florin Duma | Scanners with Risley Prisms: Modelling with Mechanical Design Programs |
| 15. | Andrei Szilagyı, Valentin Ciupe, Inocenţiu Maniu | Applications of the Ackerman Steering and Electronic Differential in Modern Electric Drive Automotive Systems |
| 16. | Alina Todi-Eftimie, Radu Velicu, Radu Săulescu, Codruţa Jaliu | Geometric Modeling of Power Joints from Bush Chain Drives |
| 17. | Ion Vişa, Monica Vătăşescu, Mircea Neagoe, Bogdan Gabriel Burduhos | 1-DOF Mechanisms for Dual Axis Solar Tracking |
| 18. | Hariton Poparad | Study of the Curved Plate Spring Behavior for Small Displacements |
| 19. | Hariton Poparad | Study of the Motion of Random Axes using the Coupling with Curved Plate Springs |
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SECTION 5: CURRENT TRENDS IN EDUCATION

12 November, 11.30 – 13.00, room UI1

Chairmen: Baichun Zhang
Erwin Lovasz

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| 1. | Yibing Fang, Marco Ceccarelli | Findings on Italian historical Developments of Machine Technology in 19th Century Towards Industrial Revolution |
| 2. | Niels Modler, Andrei Comşa, Inocențiu Maniu, Erwin Lovasz, Valentin Ciupe | Dedicated Gripper for Books Handling in a Library |
| 3. | Vistrian Mătieș, Olimpiu Hancu, Ciprian Rad, Liliana Dache | Considerations regarding the Process of Integration the Mechanisms in the Structure of the Mechatronic Systems |
| 4. | Ovidiu Antonescu, Ionuț Geonea, Păun Antonescu | Review on Mechanisms Used as Handbrake in Carriages and Locomotives |
| 5. | Mădălina Rus, Silvia Vereșiu, Elena Mereuță | Using Mathematica Program in Teaching Mechanisms |
| 6. | Silvia Vereșiu, Mădălina Rus, Elena Mereuță | Using Computer Aided Design in Teaching Mechanisms |
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