



EUCOMES 2010

3-rd European Conference on Mechanism Science

Technical University of Cluj-Napoca, Romania

Student's Culture House

September 14-18, 2010

FINAL PROGRAM

Conference Program

Tuesday, September 14, 2010

Arrival of participants	
20.00	Welcome Party – The Restaurant of Golden Tulip Hotel

Wednesday, September 15, 2010

8.00 - 9.00	Registration
9.00 -10.00	Opening Ceremony
10.00 -11.00	Session - Computational Kinematics I
11.00 -11.30	Coffee break
11.30 -13.30	Session - Computational Kinematics II
13.30 -14.30	Lunch
15.00 -16.00	Session - Computational Kinematics III
16.00 -17.00	Session - Micro-mechanisms
17.00 -17.30	Coffee break
17.30 -19.30	Session - Linkages and Manipulators
19.30 -20.00	Meeting of the EUCOMES Steering Committee
20.30	“Dinner by the lake” – Chios Restaurant

Thursday, September 16, 2010

8.00 - 9.00	Registration	
	Parallel Sessions I	Parallel Sessions II
9.00 -11.00	Mechanical transmissions I	Dynamics
11.00 -11.30	Coffee break	
11.30 -13.30	Mechanical transmissions II	Applications and Teaching Methods I
13.30 -14.30	Lunch	
15.00 -17.00	Mechanisms for Biomechanics	Applications and Teaching Methods II
		Novel Designs
17.00 -17.30	Coffee break	
17.30 -19.30	Experimental Mechanics	Control Issues of Mechanical Systems
20.30	“Dinner in the Residential surroundings” - Stil Restaurant and IFToMM Award Ceremony	

Friday, September 17, 2010

8.00 - 9.00	Registration
9.00 -11.00	Session - Mechanism Design I
11.00 -11.30	Coffee break
11.30 -12.30	Session - Mechanism Design II
12.30 -13.30	Session Mechanics of Robots
13.30 -14.30	Lunch
15.00 -18.00	Excursion
20.30	“Gala Dinner” and EUCOMES 2010 Best Paper Award Ceremony –Gilau Motel

Saturday, September 18, 2010

Departure of participants	
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Technical Program

Wednesday, 15.09.2010

Opening Ceremony	Room A	9.00-10.00
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Computational Kinematics I		Room A	10.00-11.00
Session chair	Marco Ceccarelli		
<i>C. Huang, R. Tseng and X. Kong: Design and Kinematic Analysis of a Multiple-Mode 5R2P Closed-Loop Linkage</i>			
<i>A. Perez-Gracia: Synthesis of Spatial RPRP Loops for a Given Screw System</i>			
<i>H.-P. Schröcker: Contributions to Four-Positions Theory with Relative Rotations</i>			

Coffee break	11.00-11.30
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Computational Kinematics II		Room A	11.30-13.30
Session chair	Manfred Husty		
<i>Moroz, D.Chablat, P.Wenger, F. Rouiller: Cusp points in the parameter space of RPR-2PRR parallel manipulators</i>			
<i>T. Itul, D. Pislá, A. Stoica, Kinematics and Design of a Simple 2-DOF Parallel Mechanism used for Orientation</i>			
<i>G. Nawratil: Special cases of Schönflies-singular planar Stewart Gough platforms</i>			
<i>D. I. Popescu: The Motion of a Small Part on the Helical Track of a Vibratory Hopper</i>			
<i>J. Švígler: Kinematic Analysis of Screw Surface Contact</i>			
<i>A. Capustiac, C. Brisan: Aspects Concerning VRML Simulation of Calibration for Parallel Mechanisms</i>			

Computational Kinematics III		Room A	15.00-16.00
Session chair	Jean-Pierre Merlet		
<i>M. Diez, V. Petuya, E. Macho, A. Hernández: Protein kinematic motion simulation including potential energy feedback</i>			
<i>M. Pfurner, M. Husty: Implementation of a New and Efficient Algorithm for the Inverse Kinematics of Serial 6R Chains</i>			
<i>G. Nawratil and H. Stachel: Composition of spherical four-bar-mechanisms</i>			

Micro-mechanisms		Room A	16-17
Session chair	Burkhard Corves		
<i>C. Edeler, I. Meyer, F. Fatikow: Simulation and Measurements of Stick-Slip-Microdrives for Nanorobots</i>			
<i>A. Burisch, S. Drewenings, R.J. Ellwood, A. Raatz, D. Pisl: Analysis and Inverse Dynamic Model of a Miniaturized Robot Structure</i>			
<i>S. Noveanu, D. Mândru, A. I. Ivan, V.I. Csibi: Design and Modelling a Mini-System with Piezoelectric Actuation</i>			

Coffee break	17.00-17.30
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Linkages and Manipulators		Room A	17.30-19.30
Session chair	Yukio Takeda		
<i>G. Kiper: Some Properties of Jitterbug-Like Polyhedral Linkages</i>			
<i>B. Corves: Servo Drives, Mechanism Simulation and Motion Profiles</i>			
<i>I.Visa, I. Hermenean, D. Diaconescu, A. Duta: Azimuth Tracking Linkage Influence on the Efficiency of a Low CPV System</i>			
<i>B. Sandru, C. Pinto, O. Altuzarra and A. Hernandez: Multiobjective Optimization of a Symmetric Schönflies Motion Generator</i>			
<i>N. Modler, K.-H. Modler, W. Hufenbach, M. Gude, J. Jaschinski, M. Zichner, E.-C. Lovasz, D. Margineanu and D. Perju: Cyclic Test of Textile-Reinforced Composites in Compliant Hinge Mechanisms</i>			
<i>D. Diaconescu, I. Visa, M. Vatasescu, R.Saulescu, B. Burduhos: The Optimization of a Bi-Axial Adjustable Mono-actuator PV Tracking Spatial Linkage</i>			

Thursday, 16.09.2010

Mechanical Transmissions I		Room A	9.00-11.00
Session chair	Ion Visa		
A. Fernandez del Rincon, M. Iglesias, A. de-Juan, F. Viadero: <i>Defect Simulation in a Spur Gear Transmission Model</i>			
C. Jaliu, D. Diaconescu, R. Săulescu, O. Climescu: <i>On a New Planetary Speed Increaser Used in Small Hydros. Part I. Conceptual Design</i>			
R. Săulescu, C. Jaliu, D. Diaconescu, O. Climescu: <i>On a New Planetary Speed Increaser Used in Small Hydros. Part II. Dynamic Model</i>			
M. Pleguezuelos, J.J. Pedrero, M. Sanchez: <i>Simplified Calculation Method for the Efficiency of Involute Helical Gears</i>			
P. Flores: <i>Cam size optimization of disc cam-follower mechanisms with translating roller followers</i>			
D.Comanescu, A. Comanescu: <i>The Dynamic Effects on Serial Printers Motion Transmission Systems</i>			

Dynamics		Room B	9.00-11.00
Session chair	Fernando Viadero		
M. Machado, P. Flores and H. M. Lankarani: <i>Spatial multibody systems with lubricated spherical joints: modeling and simulation</i>			
S. Reich, S. Segla: <i>Comparison of a Passenger Car with Passive and Semi-active Suspension System Based on a Friction Controlled Damper</i>			
V. van der Wijk, J.L. Herder: <i>Dynamic Balancing of a Single Crank-Double Slider Mechanism with Symmetrically Moving Couplers</i>			
V. Atanasiu, D. Leohchi: <i>Evaluation of Engagement Accuracy by Dynamic Transmission Error of Helical Gears</i>			
I.Turcu, C. Birleanu, F. Sucala and S. Bojan: <i>The influence of the friction forces and the working cyclogram upon the forces of a robot.</i>			
A. Pisla, T. Itul, D. Pisla: <i>Dynamic Aspects in Building up a Flight Simulator</i>			

Coffee break	11.00-11.30
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Mechanical Transmissions II		Room A	11.30-13.30
Session chair	Helmuth Stachel		
D. Perju, E.-C. Lovasz, K.-H. Modler, L.M. Dehelean, E.C. Moldovan and D. Mărgineanu: <i>Size minimization of the cam mechanisms with translating roll follower</i>			
E. Seabra and P. Flores: <i>Kinematic analysis of the roller follower motion in translating cam-follower mechanisms</i>			
D. Ciobanu, I. Visa: <i>Kinematic Analysis of Cam Mechanisms as Multibody Systems</i>			
A. Potapova, A. Golovin, A. Vukolov: <i>Peculiarities of Flat Cam Measurement by Results of Digital Photo Shooting</i>			
A. F. Pop, R. Morariu-Gligor, M. Balcau: <i>Analyzing of Vibration Measurements upon Hand-Arm System and Results Comparison with Theoretical Model</i>			
I. Stroe: <i>Elastic and Safety Clutch with Metallic Roles and Elastic Rubber Elements</i>			

Applications and Teaching Methods I		Room B	11.30-13.30
Session chair	Doina Pisla		
M. Perrelli, P. Nudo, D. Mundo and G.A. Danieli: <i>Robotic Control of the Traditional Endoscopic Instrumentation Motion</i>			
F. Graur, M. Frunza, R. Elisei, L. Furcea, L. Scurtu, C. Radu, A. Szilaghy, H. Neagos, A. Muresan, L. Vlad: <i>Ethics in Robotic Surgery and Telemedicine</i>			
I. Blebea, C. Dobocan, R. Morariu Gligor: <i>Optimal Control Problem in New Products Launch – Optimal Path using a single command</i>			
V.-F. Duma, J.P. Rolland: <i>Mechanical Constraints and Design Considerations for Polygon Scanners</i>			
F. Graur, L. Scurtu, L. Furcea, N. Plitea, C. Vaida, O. Detesan, A. Szilaghy, H. Neagos, A. Muresan and L. Vlad: <i>Training Platform for Robotic Assisted Liver Surgery - the Surgeon Point of View</i>			
V.-F. Duma: <i>Teaching Mechanisms: from Classical to Handson- Experiments and Research-Oriented</i>			

Mechanisms for Biomechanics		Room A	15-17
Session chair	Alba Perez		
C. Berceanu, D. Tarnita, S. Dumitru and D. Filip: <i>Forward and Inverse Kinematics Calculation for an Anthropomorphic Robotic Finger</i>			
T. Zielinska, Krzysztof Mianowski: <i>Selected Design Problems in Walking Robots</i>			
D. Tarnita, D. Popa, N. Dumitru, D.N. Tarnita, V. Marcusanu, C. Berceanu: <i>Numerical Simulations of the Virtual Human Knee Joint</i>			
Tatsuro Iwaya, Yukio Takeda, Makoto Ogata and Masaru Higuchi: <i>Development of a Walking Assist Machine Using Crutches - Motion for Ascending and Descending Steps</i>			
N. Dumitru, C. Copilusi, N. Marin, L. Rusu: <i>Human Lower Limb Dynamic Analysis with Applications on Orthopedic Implants</i>			
B. Baldisserri, V. Parenti Castelli: <i>A new spatial kinematic model of the lower leg complex: a preliminary study</i>			

Applications and Teaching Methods II		Room B	15-16
Session chair	Karl Heinz Modler		
D. Bolshakova and V. Tarabarin: <i>Models of French engineers in the collection of Bauman Moscow State Technical University</i>			
N. Manychkin, M. Sakharov and V. Tarabarin: <i>The models of centrifugal governors in the collection of Bauman Moscow State Technical University</i>			
S. Butnariu, D. Talaba: <i>Advanced approaches using VR simulations for teaching mechanisms</i>			

Novel Designs		Room B	16-17
Session chair	Chintien Huang		
J-P. Merlet: <i>Preliminary design of ANG, a low-cost automated walker for elderly</i>			
T. Bruckmann, M. Hiller and D. Schramm: <i>An Active Suspension System for Simulation of Ship Maneuvers in Wind Tunnels</i>			
M. Ceccarelli, G. Carbone, E. Ottaviano: <i>Mechanism Solutions for legged Robots Overcoming Obstacles</i>			

Coffee break	17.00-17.30
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Experimental Mechanics		Room A	17.30-19.30
Session chair	Iuliu Negrean		
G. Bayar, E. I. Konukseven, A. B. Koku: <i>Theoretical and Experimental Determination of Dynamic Friction Coefficient for a Cable-Drum System</i>			
P. Miermeister, A. Pott: <i>Modelling and real-time dynamic simulation of the cable-driven parallel robot IPAnema</i>			
A. Vukolov, A. Golovin, N. Umnov: <i>Horse Gait Exploration on "Step" Allure by Results of High Speed Strobelight Photography</i>			
T. Dietz, A. Pott and A. Verl: <i>Simulation of the Stopping Behavior of Industrial Robots</i>			
E. Ravina: <i>Mechanical and Thermal Testing of Fluidic Muscles</i>			
J. Corral, Ch. Pinto, M. Urizar, V. Petuya: <i>Structural Dynamic Analysis of Low-Mobility Parallel Manipulators</i>			

Control Issues of Mechanical Systems		Room B	17.30-19.30
Session chair	Vincenzo Parenti-Castelli		
J. Schmitt, D. Inkermann, A. Raatz, J. Hesselbach and T. Vietor: <i>Dynamic Reconfiguration of Parallel Mechanisms</i>			
C. Vaida, D. Pislă, N. Plitea, B. Gherman, B. Gyurka, F. Graur, L. Vlad: <i>Development of a Voice Controlled Surgical Robot</i>			
C. Alexandru: <i>Modeling and Simulation of the Tracking Mechanism used for a Photovoltaic Platform</i>			
O. Tatar, C. Cirebea, A. Alutei: <i>The modular robotic system for in-pipe inspection</i>			

Friday, 17.09.2010

Mechanism Design I		Room A	9-11
Session chair	Vistriian Maties		
A. H. Chebbi, V. Parenti-Castelli: <i>Geometric and manufacturing issues of the 3-UPU pure translational manipulator</i>			
K. A. Arrouk, B. C. Bouzgarrou and G. Gogu: <i>Workspace Determination and Representation of Planar Parallel Manipulators in a CAD Environment</i>			
N. M. Dehelean, L. M. Dehelean, E.-C. Lovasz and D. Perju: <i>A Theoretical Improvement of Stirling Engine PV Diagram</i>			
T. A. Antal, A. Antal: <i>Cylindrical worm gears with improved main parameters</i>			
A. de-Juan, J.-F. Collar, P. Fisette, P. Garcia and R. Sancibrian: <i>Multi-objective optimization of parallel manipulators: Application to Delta robot</i>			
T. A. Antal. A. Antal: <i>A design method of crossed axes helical gears with increase uptime and efficiency</i>			

Coffee break	11.00-11.30
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Mechanism Design II		Room A	11.30-12.30
Session chair	Annika Raatz		
Gh. Moldovean, B. R. Butuc and R. Velicu: <i>Dual Axis Tracking System with a Single Motor</i>			
S. Bojan, C. Birleanu, F. Sucala, I Turcu: <i>The determination of the exact surfaces of the spur wheels flank with the unique rack-bar</i>			
R. M. Gui, V. Ispas, Vrg. Ispas and O. A. Detesan: <i>Choosing the Actuators for the TRTTR1 Modular Serial Robot</i>			

Mechanics of Robots		Room A	12.30-13.30
Session chair	Erwin Lovasz		
A. Pashkevich, A. Klimchik, S. Caro and D. Chablat: <i>Stiffness modelling of parallelogram-based parallel manipulators</i>			
R.J. Ellwood, D. Schütz, A. Raatz: <i>Incorporating Flexure Hinges in the Kinematic Model of a Planar 3-<u>P</u>RR Parallel Robot</i>			
D. Pisla, B.G. Gherman, M. Suci, C. Vaida, D. Lese, C. Sabou, N. Plitea: <i>On the Dynamics of a 5 DOF Parallel Hybrid Robot used in Minimally Invasive Surgery</i>			