Scientific Programme

June 18, Monday – 09:30-10:30

CONFERENCE HALL **KEYNOTE LECTURE**

Chairman : Kenneth K. Waldron

KEY 1 Forced Response Computation for Bladed Disks Industrial Practices and Advanced Methods
E. Seinturier (Turbomeca, France)

June 18, Monday – 10:45-12:45

ROOM 1 **COMPUTATIONAL KINEMATICS (CK-1)**

Chairmen : Syamsul Huda, Marco Leonesio

273 Singularity Analysis of Accelerometer Strapdowns for the Estimation of the Acceleration Field of a Planar Rigid-Body Motion
Philippe Cardou (McGill University, Canada), Jorge Angeles

141 A general approach for Self-locking Analysis in Closed Kinematic Chains
Marco Leonesio (Institute of Industrial Technology and Automation, Italy), Giacomo Bianchi, Piera Manara (Politecnico of Milan)

906 Workspace Analysis and Maximal Force Calculation of a Face-Shovel Excavator using Kinematical Transformers
Francisco Geu Flores (University of Duisburg-Essen, Germany), Andres Kecskemethy, Alois Poettker (Terex OK Mining)

291 Application of the Stress-based Finite Element Method to a Flexible Slider Crank Mechanism
Y.L. Kuo (University of Toronto, Canada), W.L. Cleghorn

270 Cayley Maps for SE(3)
J.M. Selig (London South Bank University, U.K.)

308 Dynamic Model of a 6-DOF Parallel Robot by Considering Friction Effects Tiberiu
Pavel Itul (Technical University in Cluj-Napoca, Romania), Doina Liana Pisla, Adrian Pisla

ROOM 2 **GEARING AND TRANSMISSIONS (GT-1)**

Chairmen : Vilmos Simon, Alejandro Quesada

555 Structural Synthesis of Cam-Controlled Planetary Gear Trains with 4 and 5 Links
Wen-Hsiang Hsieh (National Formosa University, Taiwan), Ta-Shi Lai, Shou-Jui Chen

488 Fatigue Calculations Over An Estimated Fatigue Limit
Alejandro Quesada (UC3M, Spain), Carolina Alvarez-Calda, Ester Olmeda, José Luis San Roman

215 Dynamic Analysis on Ring-plate Gear Reducer
Zhang Jun (Tianjin University, P.R. China), P.R. China), Song Yimin, Zhang Ce

714 Revealing of Independent Oscillations in Planetary Reducer Gear owing

to its symmetry
Luidmila Banakh (Mechanical Engineering Research Institute, Russia), Yury Fedoseev

146 Combined synthesis of five-bar linkages and non-circular gears for precise path generation
Domenico Mundo (University of Calabria, Italy), Gianluca Gatti, David B. Dooner (University of Puerto Rico)

751 Kinetostatic comparison of a noncircular gear and a double-crank linkage with the same transmission ratio
H. F. Quintero (Universidad Tecnologica de Pereiran, Colombia), S. Cardona (Universitat Politecnica de Catalunya), L. Jordi, L. V. Vanegas (Universidad Tecnologica de Pereira)

ROOM 3 ROBOTICS (RB-1)

Chairmen : Oscar Altuzarra, Grigore Gogu

84 Temperature-Induced Deformation in a Mechanical System
Pranchalee Poonyapak (Carleton University, Canada), M. John D. Hayes, J. Moyra J. Mc Dill

399 Reangularity: cross-coupling kinetostatic index for parallel robots
Grigore Gogu (Blaise Pascal University, France)

475 Multivectors and Quaternions in Rigid Body Rotation: Clifford vs Hamilton
Joe Rooney (The Open University, U.K.)

473 Architectures of Translational Parallel Mechanism for MEMS Fabrication
Hagay Bamberger (Technion, Rafael, Irael), Alon Wolf, Moshe Shoham

370 Force and Stiffness Analyses of Wire-Actuated Parallel Manipulators
Sureyya Sahin (Queen's University, Canada), Leila Notash

40 Partially Decoupled Parallel Manipulators Based on Multiple Platforms
Oscar Altuzarra (University of the Basque Country, Spain), Maider Loizaga, Victor Petuya, Enrique Amezua

ROOM 4 ROBOTICS (RB-12)

Chairmen : Zhumadil Baigunchekov, Vicente Mata

593 Worm-Like Locomotion Systems at the TU Ilmenau
Carsten Behn (Technische Universitaet Ilmenau, Germany), Klaus Zimmermann

602 Modelling of a Spherical Robotic Wrist with Euler Parameters
Shaoping Bai (Aalborg University, Denmark), Michael R. Hansen

487 Dynamics and Control of a One-legged 2-D SLOM Hopping Robot
Ajij Sayyad (IIT Bombay, India), Bharatendu Seth, Kurien Issac

847 Endoscope Kinematics
Harvey Lipkin (Georgia Tech Research Institute, USA), Jomkwon Munnae, Gary McMurray, Debao Zhou, Wayne Daley

524 Redundancy resolution using a tractrix and its application to real-time simulations of hyper-redundant manipulators, snakes and tying of knots
S. Sreenivasan (IISc Bangalore, India), Piyush Goe, Ashitava Ghosal

144 Dynamic Parameter Identification of Parallel Robots Considering Physical Feasibility and Nonlinear Friction Models
Nidal Farhat (Universidad Politecnica de Valencia, Spain), Miguel-Angel Diaz (Universidad de Los Andes, Merida, Venezuela), Vicente Mata (Universidad Politecnica de Valencia, Spain)

ROOM 5 LINKAGES AND CAMS (LC-1)

Chairmen : Burkhard Corves, Jen Yu Liu

866 Introductory Analysis of an Innovative Volumetric Rotary Machine

Giovanni Mimmi (Universita degli studi di Pavia, Italy), Giovanni Bonandrini, Carlo Rottenbacher

653 Synthesis of Eight-Bar Linkages as Mechanically Constrained Parallel Robots
Gim Song Soh (University of California,USA), J. Michael McCarthy

562 An-AHP Based Approach to Type Selection of Mechanisms for Periodic-Function Generation
Fikri Dweiri (Jordania), Abdullah Dwairi, Omar Ashour

967 Non-conventional mechanisms based on elastic deformations
G. Dobre (Univ. Politehnica, Romania), R.F. Mirica, M. Neacsa, C. Sandu (TMCP, Bucharest)

373 A Systematic Procedure to Count the Number of Mechanisms Subject to Design Constraints
ChihChing Hung (National Cheng Kung University, Taiwan), HongSen Yan, Gordon.R. Pennock (Purdue University West Lafayette, USA)

193 An Optimal Design Approach for the Open/Close Blow-Station Cam Mechanism of A Rotary Type Blow-molding Machine
Jen Yu Liu (Taiwan), Hong Sen Yan, Guo Bin, Wang, Zheng Dar Tsai

ROOM 6 MECHATRONICS (ME-1)

Chairmen : Tatu Leinonen, Paolo Pennacchi

528 Investigation the dynamic process of automatic impulse extinguishing
Marijonas Bogdevicius (Vilnius Gediminas Technical University, Lithuania), Vladimiras Suslavicius

826 New approach to automated conceptual design of the hybrid combination mechanical system
Liping Zhang (Dalian University of Technology, China), Delun Wang

430 Robust identification of excitation in mechanical systems in presence of model inaccuracies and environmental noise using M-estimate
Paolo Pennacchi (Politecnico di Milano, Italy), Marco Pedrinelli

382 Optimization and comparison of passive, active, and semi-active vehicle suspension systems
Stefan Segla (Tech. University of Kosice, Slovakia), Stefan Reich

299 Computer simulation machining a 3D free form surface by using a 3-UPU parallel manipulator and a milling machine
Lu Yi (University of Oulu, Finland), Tatu Leinonen

589 Quality Monitoring for Micro Resistance Spot Welding
Chyuan-Yow Tseng (National Pingtung University of Science and Technology, P.R. China), Young-Chang Chen , Tu-Fa Wang

ROOM 7 TRANSPORTATION MACHINERY (TM-1)

Chairmen : Madhu Raghavan, Zhang Ce

101 Efficient Computational Techniques for Planetary Gear Train Analysis
Madhu Raghavan (GM RD, USA)

868 Thermo-Mechanical Properties Of Compressed Rubber Block
Ludek Pesek (IT AS, Czech Republic), Ladislav Pust, Petr Culc

192 A Modelling Approach for the Lightweight Design of Railroad Truck
Lianyou Yu (Qiqihar Railway Rolling Stock Co. Ltd, China), Hengjun Zhu (Beijing Jiaotong University), Jiangtian Yang

781 Measurement of lateral tire force as vehicle inspection instrument
Daniel Garcia-Pozuelo (Carlos III University, Spain), J. Antonio Calvo, Antonio Gauchia, Vicente Diaz

828 Dynamics Study on Intermittent Transmission Chain System
Yang Yuhu (Tianjin University, P.R. China), Xingang Hou, Jianping Liu, Zhang Ce

609 Modelling of liquid cargo - vehicle interaction during turning manoeuvres
José A. Romero (Queretaro Autonomous University, Mexico), Alejandro Lozano, Wenceslao Ortiz

June 18, Monday – 14:00-16:20

ROOM 1 COMPUTATIONAL KINEMATICS (CK-2)

Chairmen : Mati Heinloo, Tarik Saidouni

245 Development of virtual reality methods based analysis and synthesis of mechanisms
Mati Heinloo (Estonian University of Life Sciences, Estonia), Taavi Leola

590 State Space Representations on Modular Kinematics of Planar Mechanism
Hao Wang (Shanghai Jiao Tong University, P.R. China), Yin Xie, Xinmin Lai

187 Discontinuously Movable 8R Mechanisms with an Infinity of Bifurcations
Chung-Ching Lee (National Kaohsiung University of Applied Sciences, Taiwan), Jacques M. Hervé (Ecole Centrale Paris, France)

65 The Design of Planar and Spatial Mechanism Models Following the Rules of Similarity Mechanics
Hanfried Kerle (IWF, Germany), Mathias Krefft (IAV), Christoph Budde (IWF)

493 Polyhedra with articulated faces
Thierry Laliberté (University Laval, Canada), Clément Gosselin

717 Systematic Analyses of Forward Dynamics of Planar Closed-loop Mechanisms
Nobuyuki Iwatsuki (Tokyo Institute of Technology, Japan)

397 The Displacement Analysis of a Concentric Double Universal Joint
Chen-Chou Lin (National Taiwan Ocean University, Taiwan), Wei-Kai Liao

ROOM 2 GEARINGS AND TRANSMISSIONS (GT-2)

Chairmen : Carlos Lopez-Cajun, Ales Belsak

414 Review of Researches on Ring-plate Gear Reducers with Small Tooth Number Difference
Zhang Ce (Tianjin University, P.R. China), Song Yimin, Zhang Jun

544 A mild hybrid engine-solid oxide fuel cell vehicle configuration using a continuously variable power-split transmission
Miguel Gomez (West Virginia University, Mexico}, Victor Mucino, James Smith, Carlos Lopez-Cajun (Universidad Autonoma de Querotaro)

385 Contact Characteristics of Spherical Gears
Li-Chi Chao (Taiwan), Chung-Biau Tsay

422 Assessing the Condition of Gear Units by means of Vibrations
Ales Belsak (University of Maribor, Slovenia), Joze Flasker

406 Simple techniques for measuring the base helix angle of involute gears
Carlo Innocenti (University of Modena and Reggio Emilia, Italy)

278 Researches on Key Technologies in Optimization Design of Ring-Plate Gear Reducer
Song Yimin (Tianjin University, P.R. China), Zhang Jun, Zhang Ce

502 Rigid Space Curve Mesh Theory and Its Kinematics Experiment
Y.Z. Chen (South China University of Technology, China), G.Q. Xing, X.F. Peng

ROOM 3 **ROBOTICS (RB-2)**

Chairmen : Philippe Bidaud, Nenad Pavlovic

200 Mobility Determination of Displacement Set Fully Parallel Platforms
José M. Rico (Universidad de Guanajuato, Mexico), J. Jesus Cervantes, Gerardo I. Perez (Instituto Tecnologico de la Laguna), Juan Rocha (Universidad de Guanajuato), Alejandro Tadeo (Instituto Tecnologico Superior de Irapuato)

83 Singularity analysis of parallel manipulator POLMAN 3x2 with six degrees of freedom
Krzysztof Mianowski (Warsaw University of Technolog, Polandy)

17 Actuation scheme for a 6-DOF Kinematically Redundant Planar Parallel Manipulator
Iman Ebrahimi (University of New Bunswick, Canada), Juan A. Carretero, Roger Boudreau (Universite de Moncton)

103 A System for Tension Monitoring in Cable-Based Parallel Architectures
Erika Ottaviano (University of Cassino, Italy)

428 An Application of an Hybrid Robot in the Total Knee Replacement Procedure
Stefano Bruni (Politecnico di Milano, Italy), Pietro Cerver, Ivan Espinosa

66 Design and analysis of a mechanism actuating a sight device
Tarik Saidouni (EMP, Algeria), Mokrane Bessaoud, Ahmed Terki

99 Parallel Robots with Adaptronic Components - Design Through Different Knowledge Domains
Carsten Stechert (Institute of Engineering Design, Germany), Nenad Pavlovic, Hans-Joachim Franke

ROOM 4 **ROBOTICS (RB-13)**

Chairmen : Giulio Rosati, Noureddine Zerhouni

853 Structural Synthesis of New Parallel and Serial Platform Manipulators
Rasim Alizade (Izmir Institute of Technology, Turkey), Fatih Can, Erkin Gezgin, Ozgun Selvi

825 A new method for the estimation of position accuracy in parallel manipulators with joint clearances
Antonio Frisoli (Scuola Superiore Sant'Anna, Italy), Massimiliano Solazzi, Edoardo Sotgiu, Massimo Bergamasco

924 The New Parallel Manipulator with 6 Degree-of-Freedom
Baigunchekov Zhumadil (Kazakhstan)

904 Elasto-Geometrical Modelling of a Pantographic Linkage Used as Coordinate Measuring Arm for PKM Applications
Mathieu Rognant (INSA de Rennes, France), Patrick Maurine

778 A Class of Kinematically Simple 7-Revolute Jointed Serial Manipulators Ron
P. Podhorodeski (University of Victoria, Canada), Roger Boudreau (Université de Moncton)

912 Motion analysis of the leg tip of a six-legged walking robot
Figliolini Giorgio (University of Cassino, Italy), Stan Sergiu-Dan (TU Cluj-Napoca, Romania), Rea Pierluigi (University of Cassino, Italy)

758 Influences of constraint errors on the mobility of a 3-DOF translational parallel manipulator
Qingsong Xu (University of Macau, Macao), Yangmin Li

ROOM 5 **LINKAGES AND CAMS (LC-2)**

Chairmen : Karl-Heinz Modler, Gérard Lallement

618 Matter-Element Representations for Mechanisms Composed of Kinematic Building Blocks
Feng-Ming Ou (Industrial Technology Research Institute, Taiwan), Hong-Sen Yan (National Cheng Kung University), Ching-Yuan Lin (Industrial Technology Research Institute)

835 Development of a Tristable Compliant Mechanism
Tyler Pendleton (Brigham Young University, U.S.A.), Brian Jensen

29 Dynamic Behavior of Roller Gear Cam Systems
Jao-Hwa Kuang (National Sun Yat-Sen University, Taiwan), Chao-Ming Hsu

76 An analytical method to locate secondary instant centers of indeterminate linkages
Raffaele Di Gregorio (University of Ferrara, Italy)

355 Analysis of Mechanical Error in Quick-return Shaper Mechanism
Nenad D. Pavlovic (University of Nis, Serbia)

393 Automatic Generation of Loop Closing Constraint Equations for Rotational Joint
Gabor Erdos (Hungary)

516 Door Closing Force Analysis of Watt-I Type Hinge with Joint Clearance
Ming J. Tsai (National Cheng-Kung University, Taiwan), Tien S. Lai (Kun Shan University)

ROOM 6 RELIABILITY OF MACHINES AND MECHANISMS (RMM-1)

Chairmen : Zdenek Vintr, Ying Qiao Guo

929 Reliability and Safety of Rail Vehicle Electromechanical Systems
Zdenek Vintr (University of Defence, Czech Republi), Michal Vintr (Brno University of Technology)

756 Approche probabiliste du positionnement d'un système robotique
Moises Arroyo-Contreras (Universidad Autonoma de Queretaro, Mexico), Carlos Lopez-Cajun, Eduardo Castillo-Castaneda

800 Fatigue damage modelling on rolling path under cyclic loading
Philippe Lestriez (GMMS, France), Fabien Bogard, Ju Lin Shan (SAIE), Ying Qiao Guo (GMMS)

664 A New Model Analyzing For The Uncertain Problems In The Engineering Structural Design Based On The Set Pair Analysis
Changhong Liu (P.R. China), Xintian Liu

922 Reliability Assessment for Components of Complex Mechanisms and Machines
Michal Vintr (Brno University of Technology, Czech Republic)

294 Machines and Mechanisms Design for Reliability
Anthony Hahnel (Renault S.A.S. France), Maurice Lemaire, François Rieuneau), Frédéric Petit

ROOM 7 MULTIBODY DYNAMICS (MD-1)

Chairmen : John McPhee, Scott Cogan

464 Sensitivity Analysis of Inertia Parameters in Multibody Dynamics Simulations
Peter Eberhard (University of Stuttgart, Germany), Werner Schiehlen, Juergen Sierts

210 Multibody simulations of trolleybus vertical dynamics and influences of tire radial characteristics
Pavel Polach (Skoda Research Ltd., Czech Republic), Michal Hajzman

788 Design of a passive vibration isolation bearing using a multidimensional viscoelastic model
Juan Jauregui (CIATEQ, Mexico), Oscar Gonzalez, Eduardo Rubio

304 An influence of disk counterweight orientation on dynamic balancing of spherical four bar mechanism
Krzysztof Lipinski (Gdansk University of Technology, Poland)

923 Dynamic analysis of rolling bearing system using Lagrangian model Vs. FEM code
Higinio Rubio (Universidad Carlos III, Spain), Juan Carlos Garcia-Prada, Cristina Castejon, Edwin Laniado

902 Information gain quantification in structural dynamic
Emmanuel Pillet (FEMTO-ST, France), Noureddine Bouhaddi, Scott Cogan

571 Modelling Three-Dimensional Rigid-Flexible Multibody Systems by Using Absolute Coordinates
Daniel Garcia-Vallejo (University of Seville, Spain), Juana Maoy, José Luis Escalona, Jaime Domenguez

June 18, Monday – 16:40-18:40

ROOM 1 COMPUTATIONAL KINEMATICS (CK-3)

Chairmen : Moshe Shoham, Jacques Hervé

941 A 1-Dof parallel spherical wrist for the modelling of the knee passive motion
Nicola Sancisi (University of Bologna, Italy), Vincenzo Parenti Castelli

936 From Dexterity to Calibrability of Parallel Kinematical Structures
Michael Valasek (CTU, Czech Republic), Zbynek Sika, Vojtech Hamrle

432 HexaSpine : A Parallel Platform for Physical Cervical Spine Simulation - Design and Interval-Based Verification
Kusnadi Liem (University of Duisburg-Essen, Germany), Andres Kecskemethy, Jean-Pierre Merlet (INRIA)

743 Singularity of Gough-Stewart platforms with collinear joints
Patricia Ben-Horin (Technion, Israel), Moshe Shoham

234 Dimensional Synthesis of 3-URU Pure Rotational Parallel Mechanism with Respect to Singularity and Workspace
Syamsul Huda (Tokyo Institute of Technology, Japan), Yukio Takeda

441 Singularity Loci of Revolute-Jointed Planar Parallel Manipulators with Redundant Actuated Branches
Flavio Firmani (University of Victoria, Canada), Ron Podhorodeski

ROOM 2 GEARING AND TRANSMISSIONS (GT-3)

Chairmen : Giovanni Mimmi, Vigen Arakelian

60 Transmission Error in Helical Synchronous Belt Drives in Bidirectional Operation (Influence of Error in Belt Side Face, Theoretical Analysis)
Masanori Kagotani (Osaka Sangyo University, Japan), Hiroyuki Ueda, Satoru Ue

166 Planerary safety clutch - qalitative aspects
Barbu Plosceanu (University "Politehnica" of Bucharest, Romania), Ovidiu Vasile

463 Dynamics of CVTs: A comparison between theory and experiments
Giuseppe Carbone (Politecnico di Bari, Italy), Luigi Mangialardi, Bram P. A. Veenhuizen (Eindhoven University of Technology)

339 Reseach and Development of Cone to Cone Type CVT
Hidenori Komatsubara (University Yamagata, Japan), Takayuki Yamazaki, Sadatomo Kuribayashi (Kuribayashi Steamship)

833 Theoretical and experimental analysis of wire mechanism for window regulators.
Javier Castany (University of Zaragoza, Spain), Francisco Serraller, Daniel Mercado, Jesus Fuentelsaz, Francisco Maestre, Isaac Lapetra

400 An electro-mechanical Pericyclic CVT
Michael Elmozino (UCONN, U.S.A.), Kazem Kazerounian, Al Lemanski (PVTT, Inc.)

ROOM 3 ROBOTICS (RB-3)

Chairmen : Vincenzo Parenti Castelli, Michel Fayet

317 Research on Concrete Pump Truck Arm Based on Flexible MultiBody Dynamics

Liu Jie (Northeastern University, China), Dai Li, Sun Guangfu (Shenyang Jianzhu University, China), Cai Juan (Engine graduate School, China), Zhang Jing (Northeastern University, China), Xu Yan

152 Dynamics of a 3-RRR Spherical Parallel Mechanism Based on Principle of Virtual Powers
Stefan Staicu (University "Politehnica" of Bucharest, Romania)

467 Control Chaos in A Spatially Redundant Manipulator with Flexible Link
Li Li (China), Hong H. Zhang

314 Estimation of Line and Torsional Stiffness Parameters for Legs of 6DOF Parallel Mechanism
Jozef Knapczyk (Cracow University of Technology, Poland), Michal Maniowski

403 Type synthesis of parallel robot based on the kinematic element
Jinliang Gong (Shandong University of Technology, China), Yanfei Zhang, Feng Gao (Shanghai Jiao Tong University)

ROOM 4 EDUCATION (ED-1)

Chairmen : S.J. Tsai, Vytautas Barzdaitis

873 Integration of Microcontroller System Design In Mechatronic Education - Low Cost Solutions
Radu Balan (Technical University of Cluj-Napoca, Romania), Vistrian Maties, Olimpiu Hancu, Sergiu-Dan Stan, Ciprian Lapusan, Sorin Besoiu

72 Auto-learnign system for the calculation of spur and helical gears using ISO 6336
Miguel Berzal (Universidad Politecnica de Madrid, Spain), Emilio Gomez, Victoriano V. Vera, Cintia Barajas, Jesus Caja

876 3D Optimization of Graham's Escapement Mechanism
Branisalv Popkonstantinovic (University of Belgrade, Serbia), Zorana Jeli, Miljan Radunovic, Vladimir Calic

786 Graphical User Interface to Solve the Burmester Problem
Julien Bourrelle (McGill University, Canada), Chao Chen, Stéphane Caro, Jorge Angeles

517 A Study of Outcomes-based Assessment for Mechanism Instruction : An Award-winning eacher's Reflections
Pei-Fen Chang (National Central University, Taiwan), S.J. Tsai, Dau-Chung Wang (NYUST)

698 A Novel Undergraduate Mechatronics Course Featuring Hands-On Project-Based Learning
Scott Nokleby (University of Ontario, Canada)

ROOM 5 LINKAGES AND CAMS (LC-3)

Chairmen : Song Lin, Marc Arsicault

259 Kinematic Analyses of Rzeppa Constant Velocity Joint by Means
Katsumi Watanabe (Yamagata University, Japan), Takashi Matsuura

480 Synthesis strategy for deployable structures
Uwe Hanke (Technische University Dresden, Germany), Karl-Heinz Modler, Song Lin

394 Non-circular gear wheels in the geared-linkages mechanisms
Erwin-Christian Lovasz (Universitatea "Politehnica" din Timisoara, Romania), Karl-Heinz Modler (Technische Universitaet Dresden), Dan Perju (Universitatea "Politehnica" din Timisoara), Rudolf Neumann (Technische Universitaet Dresden), Dan Margineanu (Universitatea "Politehnica" din Timisoara), Michael Perner (Technische Universitaet Dresden)

461 Geometric identification of a car suspension mechanism based on part displacement analysis
Julien Meissonnier (LaMI, France), Jean-Christophe Fauroux, Grigore Gogu, Cédric Montezin (Michelin)

106 Lifting Manipulators for a Green Environment
Ovidiu Antonescu (Politehnica University of Bucharest, Romania), Daniela Mihalache (Iuliu Maniu Highschool of Bucharest), Paun Antonescu (Politehnica University of Bucharest)

608 Study on A New Type of Indexing Mechanism

Yang Yuhu (Tianjin University, P.R. China), Zhou Bin, Liu Jianping, Shen Yu, Xiang Zhongxia

ROOM 6 MECHATRONICS (ME-2)

Chairmen : Petri Kuosmanen, Philippe Lutz

199 Towards a concurrent optimization of mechatronic systems with configuration-dependent dynamics
Maira Martins Da Silva (Katholieke Universiteit Leuven, Belgium), Wim Desmet, Hendrik Van Brussel

697 Efficiency of Solid State Mechanical Elements with Rubber-Metal Bearings
Eugene Rivin (Wayne State University, U.S.A.)

787 Realtime Friction Estimation using the Kalman Inverse Filter
Ross McAree (University of Queensland, Australia), Kevin Austin (CRC Mining)

759 Ultra-precision machine tool or coordinate measuring machine using hexapod-type measurement device for six degree-of-freedom relative motions between cutting tool/probe and workpiece
Takaaki Oiwa (Shizuoka University, Japan)

644 Comparison of Kalman algorithms for MEMS based pitch and roll angle estimation
Simo Mattila (TKK, Finland), Petri Kuosmanen

755 Desing and control of a pump for extracorporeal blood circulation
Ana Gabriela Gallardo-Hernandez (Universidad Autonoma de Queratro, Mexico), Carlos Santiago Lopez-Cajun

ROOM 7 MULTIBODY DYNAMICS (MD-2)

Chairmen : Vladimir Algin, Marc Berthillier

391 Model Reduction of Large Elastic Systems: A Comparison Study on the Elastic Piston Rod
Panagiotis Koutsovasilis (Fahrzeugmodellierung und -simulation / TU Dresden, Germany), Michael Beitelschmidt

14 Kinematic and dynamic computation of vehicle transmission based on regular constructs
Vladimir Algin (National Academy of Sciences of Belarus, Belarus), Valentin Ivanov (Belarusian National Technical University)

255 Modeling of a Rack and Pinion Steering Linkage Using Multi-Body Dynamics
Ali Rahmani Hanzaki (Shahid Rajaee University, Tehran), Subir Kumar Saha (IIT Delhi), P.V.M. Rao

651 Application of multibody dynamics to the curving behaviour of railroad vehicles
José Escalona (Spain), Juan Valverde, Rosario Chamorro

746 Experimental Validation of a Methodology for Torsional Vibration Analysis on Internal Combustion Engines
Pablo Meirelles (UNICAMP, Brazil), Douglas Zampieri, Alexandre Mendes (MWM International Motores)

138 Automated Selection of Modelling Coordinates for Multibody System Dynamics
Mathieu Leger (University of Waterloo, Canada), John McPhee

June 19, Tuesday

08:10 – 10:10

ROOM 1 COMPUTATIONAL KINEMATICS (CK-4)

Chairmen : Andres Kecskemethy, Philippe Wenger

784 Synthesis of a Spatial SS Serial Chain for a Prescribed Acceleration Task
Nina Patarinsky Robson (UCI, U.S.A.), J. Michael McCarthy

136 Singularity Surfaces and Maximal Singularity-Free Boxes in the Joint Space Of Planar 3-RPR Parallel Manipulators
Mazen Zein (IRCCyN, France), Philippe Wenger, Damien Chablat

527 Computing the mobility of mechanisms using displacement groups
Abdelfattah Mlika (Institut Préparatoire aux Etudes d'Ingénieurs de Monastir, Tunisie), Rania Sbaa (Ecole Nationale d'Ingénieurs de Monastir), Lotfi Romdhane (Ecole Nationale d'Ingénieurs de Sousse)

484 Structure Synthesis of 6-DOF 3-3 Decoupled Parallel Manipulators
Yan Jin (School of MAE, Singapore), I-Ming Chen, Guilin Yang (Mechatronics Group, SIMTech, Singapore)

232 Kinematics analysis of the parallel module of the VERNE machine
Daniel Kanaan (IRCCyN, France), Philippe Wenger, Damien Chablat

225 Piecewise symbolic representation of input-output relation and pitch curves for non-circular gears
Pietro Fanghella (University of Genoa, Italy)

08:30 – 10:10
ROOM 2 GEARING AND TRANSMISSIONS (GT-4)
Chairmen : Vilmos Simon, Jianping Wang

69 Influence of Tooth Errors and Misalignments on Tooth Contact in Spiral Bevel Gears
Vilmos Simon (Budapest University of Technology, Hungary)

426 From transmission error measurement to Pulley-Belt slip determination in serpentine belt drives : influence of tensioner and belt characteristics
Lionel Manin (Insa de Lyon, France), Guilhem Michon, Didier Remond, Régis Dufour

491 Continuous Alternate Motion Mechanism
Giuseppe Quaglia (Politecnico di Torino, Italy), Daniela Maffiodo, Francesco Pescarmona

437 Homokinetic transmission of rotational motion via constant-velocity joints in closed-chain wrists
Marco Carricato (University of Bologna, Italy)

74 Multidisciplinary optimization of gears using the Random Virus Algorithm
Ferenc J. Szabo (University of Miskolc, Hungary)

08:10 – 10:10
ROOM 3 ROBOTICS (RB-4)
Chairmen : Min-Shin Chen, Christine Rotinat-Libersa

977 The design and applications of F/T sensor based on Stewart platform
Feng Gao (Shanghai Jiao Tong University, P.R. China), Yong Zhang, Xianchao Zhao, Weizhong Guo

272 Control for tendon-driven manipulators with flexible tendons using artificial potential field approach
Home-Che Yen (National Taiwan University, Taiwan), Jyh-Jone Lee, Min-Shin Chen

459 Modeling and Identification of a Haptic Device having a Double Parallelogram Loop
Alexandre Janot (CEA LIST and IRCCyN, France), Catherine Bidard (CEA LIST), Maxime Gautier (IRCCyN, France), Florian Gosselin (CEA LIST), Delphine Keller, Yann Perrot

62 Inverse Dynamics of 3-RPS Parallel Mechanism Based on Virtual Work Principle
Yimin Song (Tianjin University, P.R. China), Yonggang Li, Tian Huang

423 Searching Ancient Inventions from Modern Techniques-A Research of Walking Horses with 8-Link Type Leg Mechanisms
Yu-Gang Chen (Far East University, Taiwan), Meng-Hui Hsu (Kun Shan University)

181 Design Evolution of Low-Cost Humanoid Robot CALUMA

Nestor Eduardo Nava Rodriguez (University of Cassino, Italy), Giuseppe Carbone, Marco Ceccarelli

08:30 – 10:10

ROOM 4 **ROBOTICS (RB-14)**

Chairmen : Yukio Takeda, Charles Pinto

801 Singularity free change of assembly mode in parallel manipulators. Application to the 3-RPR planar platform
Erik Macho (UPV/EHU, Spain), Oscar Altuzarra, Charles Pinto, Alfonso Hernandez

831 A comparison of indices for stiffness performance evaluation
Giuseppe Carbone (University of Cassino, Italy), Marco Ceccarelli

908 Kinematic design of a gravity compensated robot for device for ultrasound examination and assessment of endothelial dysfunction.
Massimiliano Solazzi (Scuola Superiore Sant'Anna, Italy), Antonio Frisoli, Massimo Bergamasco, Edoardo Sotgiu

914 A semi-analytical stiffness model of parallel robots from the Isoglide family via the sub-structuring principle
Rani Rizk (LaMI, France), Mircea Munteanu (Transilvania University of Brasov), Jean-Christophe Fauroux (LaMI), Grigore Gogu

865 One-Mode Extra Insensitive Input Shapers to Reduce Residual Vibration in Flexible Arms : Experimental Verification
Giovanni Mimmi (Universita degli studi di Pavia, Italy), Carlo Rottenbacher, Giovanni Bonandrini

08:10 – 10:10

ROOM 5 **NONLINEAR OSCILLATIONS (NO-1)**

Chairmen : Ludek Pesek, Christoph Henninger

297 An investigation of pose-dependent regenerative chatter for a parallel kinematic machine tool
Christoph Henninger (University of Stuttgart, Germany), Peter Eberhard

378 Periodic rotatios of rollers of vibrating qualifiers at the main resonance
Victor Ostapenko (Dnepropetrovsk National University, Ukraine)

334 Dynamics of Gear Differential with One Input Only
Konstantin Ivanov (Kazakh National Technical University, Kazakhstan)

476 Vibration isolation of wiring boards in products of electronics
V. Strelbitsky, R.Silin (Ukraine), V. Royzman (Khmelnitskiy National University)

575 A Dynamic Model of a Spur Gear Pair with Friction
Ahmet Kahraman (Ohio State University, U.S.A.), Jae-Hyuk Lim, Huali Ding

365 Nonlinear coupling dynamic model of a motor-linkage mechanism system with links fabricated from symmetric laminates
Gan-Wei Cai (Guangxi University, P.R. China), Zhao-Jun Li (Huazhong University of Science & Technology), Ru-Gui Wang (Guangxi University)

08:10 – 10:10

ROOM 6 **MECHATRONICS (ME-3)**

Chairmen : Massimo Sorli, Peter Mitrouchev

274 Position control of flexible parallelogram five-bar manipulator using piezoelectric sensors and actuators
Krishnarao D. Dhuri (IIT Bombay, India), P. Seshu

224 A pneumotronic unit for automatic manipulation of book material
Ravina Enrico (University of Genoa, Italy)

899 Towards a Generic Image-Based Visual Servoing of Parallel Robots Using Legs Observation
Tej Dallej (LASMEA, France), Nicolas Andreff, Philippe Martinet (ISRC/LASMEA)

676 A Pneumatically Actuated Motion Simulator
Giuliana Mattiazzo (Politecnico di Torino, Italy), Stefano Mauro, Stefano Pastorelli, Massimo Sorli

183 Optimal Design of Bending Pneumatic Rubber Actuator Based on Non-linear Finite Element Analysis
Koichi Suzumori (Okayama University, Japan), Satoshi Endo, Takefumi Kand

948 Automation of Bird Front Half Deboning Procedure: Design and Analysis
Debao Zhou (Gerogia Tech Research Institute, USA), Jonathan Holmes, Wiley Holcombe, Kok-Meng Lee, Gary McMurray

08:30 – 10:10

ROOM 7 HISTORY OF MMS (HIS-1)

Chairmen : Agamenon Oliveira, Nenad Zrnic

121 A note on the history of handling in ports: from ancient to medieval cranes
Nenad Zrnic (University of Belgrade, Serbia), Klaus Hoffmann (Vienna University of Technology), Srdjan Bosnjak (University of Belgrade)

260 On the Progress of Standardization of Mechanism and Machine Science Terminology
Theodor Gheorghe Ionescu (C.F.R. Passenger, Romania), Antonius Klein Breteler (Delft University), Tatu Leinonen (Oulu University), Gerhard Boegelsack (Ilmenau University)

112 Astronomical Instruments In Ancient India
Shekhar Narvekar (Agnel Polytechnic, India)

683 Euler's Contribution To Classical Mechanics
Agamenon Oliveira (Federal University of Rio de Janeiro, Brazil)

729 Alphonse Duvergier : its life, its entreprise and its famous Steam Engine
Florent Laroche (IRCCyN, France), Alain Bernard, Michel Cotte (IHT)

June 19, Tuesday – 10:30-12:30

ROOM 1 COMPUTATIONAL KINEMATICS (CK-5)

Chairmen : Joao C.M. Carvalho, Damien Chablat

812 Singularity analysis of a fully parallel manipulator with five-Degrees-of-Freedom based on Grassmann line geometry
Taoufik Mbarek (IGM RWTH-Aachen, Germany), Guido Lonij, Burkhard Corves

905 Inverse Kinematics of Functionally-Redundant Serial Manipulators : A Comparison Study
Luc Baron (Ecole Polytechnique de Montréal, Canada), Liguo Huo

531 Synthesis of RAF parallel robot for prescribed workspace
Med Amine Laribi (LGM-ENISo, Tunisia), Lotfi Romdhane, Said Zeghloul (LMS-UP)

7 Kinematic Mapping Based Assembly Mode Evaluation of Spherical Four-Bar Mechanisms
Hans-Peter Schrocker (University Innsbruck, Austria), Manfred Husty

961 Two Degree of Freedom Parallel Manipulators and the Burmester Problem
Paul Zsombor-Murray (McGill University, Canada)

702 Handling Uncertainties with Symbolic/Numerical Solvers for a Class of Parallel Robots
Carlos Grandon (INRIA – COPRIN, France), David Daney, Yves Papegay, Christina Tavolieri (University of

Cassino, Italy), Erika Ottaviano, Marco Ceccarelli

ROOM 2 GEARING AND TRANSMISSIONS (GT-5)

Chairmen : Giovanni Mimmi, Mazen Zein

374 Harmonic Resonance Research on a Spur Gear System Using Multiple Scales Approach
Jianping Wang (China), Yuxin Wang

10 Mathematical modelling of gearbox nonlinear vibration
Vladimir Zeman (Czech Republic), Miroslav Byrtus

754 Some aspects of spur gear dynamics as revealed by path integration
Arvid Naess (CeSOS-NTNU, Norway), Eirik Mo (NTNU), Finn Erik Kolnes

451 Contributions to kinematics analysis of bevel planetary gears
Victor Moise (University Politehnica of Bucharest, Romania), Iulian Alexandru Tabara

966 Multi-physics approach to design analysis of powertrain sub-systems
M. Teodorescu (City University, U.K.), S. Theodossiades (Loughborough University), H. Rahnejat

970 On the distribution of the profile shift coefficients between mating gears in the case of cylindrical gear
R.F. Mirica (University Politehnica, Romania), G. Dobre

ROOM 3 ROBOTICS (RB-5)

Chairmen : Marco Ceccarelli, Didier Rémond

350 MRI-compatibility of a Manipulator using a Spherical Ultrasonic Motor
Tomoaki Mashimo (Tokyo University of Agriculture and Technology, Japan), Shigeki Toyama

392 Improvement of functional performance of spatial parallel manipulators using mechanisms of variable structure
Vigen Arakelian (INSA de Rennes, France), Sébastien Briot, Victor Glazunov (Russian Academy of Sciences)

238 Modeling of motion of vibrating robots
Sergey Jatsun (Kursk State Technical University, Russia), Nikolay Bolotnik (Instituion of Problems in Mechanics), Klaus Zimmermann (Ilmenau Technical University), Igor Zeidis

24 Type synthesis of 3-DOF linear translational parallel manipulators
Xianwen Kong (Université Laval, Canada), Clément Gosselin

82 Tracking Control of a Planar Parallel Robot via Adaptive Backstepping
Li Wang (Lakehead University, Canada), Xiaoping Liu, Kefu Liu

395 Existence d'une infinité non dénombrable de positions isotropes pour les manipulateurs série 5R sphériques
Khaled Akrout (Ecole Polytechnique de Montréal, Canada), Luc Baron, Xiaoyu Wang

ROOM 4 ROBOTICS (RB-15)

Chairmen : Ting-Li Yang, Nicolas Chaillet

730 A model to predict the deployment of a space hexapod
Gwenaelle Aridon (INSA Lyon, France), Didier Rémond, Laurent Blanchard (Alcatel Alénia Space), Régis Dufour (INSA Lyon)

882 Sub-Optimal Motion Planner of Mobile Manipulators along the End-effectors Specified Paths
Moussa Haddad (Algeria), Samir Hanchi, H.E. Lehtihet

884 Trajectory planning of a two-link rehabilitation robot arm
Giulio Rosati (Padua University, Italy), Giorgio Volpe, Andrea Biondi, Giovanni Boschetti, Aldo Rossi

814 Kiinematic Analysis of Front Suspension of an Automobile and Prediction of Steering Behaviour

Jayant Modak (India), Pramod Belkhode

964 Position and Orientation Characteristic Equation For Topological Synthesis of Robot Mechanisms
Ting-Li Yang (SINOPIC Jinling Petrochemical Corp.), An-Xin Liu (Nanjing Engineering Institute), Qiong Jin (Southeast University), Yu-Feng Luo (Nanchang University), Hui-Ping Shen (Jiangsu Institute of Technology), Lu-Bin Hang (Shanghai Jiaotong University)

890 Studies on the Steering of a Single-degree-of-freedom Hexapod
Vinayak (Punjab Engineering College, India), Dibakar Sen (Indian Institute of Science, India)

ROOM 5 LINKAGES AND CAMS (LC-4)

Chairmen : Guido Danieli, Lotfi Romdhane

532 A combined feedforward and feedback control strategy to improve the dynamic performance of cam-follower systems
Gianluca Gatti (University of Calabria, Italy), Domenico Mundo, Guido Danieli

233 On the benefits of partial shaking force balance in six-bar linkages
Myriam Verschuure (Katholieke Universiteit Leuven, Belgium), Bram Demeulenaere, Jan Swevers, Joris De Schutter

779 Experimental Validation of Input Torque Balancing Applied to Experimental Validation of Input Torque Balancing Applied to Weaving Machinery
Bram Demeulenaere (Katholieke Universiteit Leuven, Belgium), Pieter Spaepen, Stephan Masselis (WTCM-CRIF), Philip Cornelissen (Picanol N.V.), Gregory Pinte (Katholieke Universiteit Leuven), Jan Hemelsoen (Picanol N.V.)

824 The Kinetostatic Optimization of a Novel Prismatic Drive
Damien Chablat (IRCCy, France) Stéphane Caro

588 Synthesis of Geneva mechanisms and their equivalent pure-rolling cams
Giorgio Figliolini (University of Cassino, Italy), Pierluigi Rea, Jorge Angeles (McGill University, Canada)

418 Motion Analysis of a Reciprocating Motion Type Ball Reducer
Hidetsugu Terada (University of Yamanashi, Japan), Takeshi Masuda, Shinji Yoshida (Sumitomo Heavy Industry Co. Ltd.)

ROOM 6 MECHATRONICS (ME-4)

Chairmen : Tadeusz Uhl, Yukio Saito

316 Multi-Sensor Architecture for Intelligent Electromechancial Actuators
Ganesh Krishanmoorthy (University of Texas, U.S.A.), Delbert Tesar

358 Kinematic modelling of mobile robots by vision based algorithm
Peter Mitrouchev (France), Radoslav Deliyski, Pencho Venkov

880 Study on Grasping Motion of 8 DOF Robot Arm with Visual Servo System
Yukio Saito (Tokyo Denki University, Japan), Okitoshi Tsunoda, Keigo Adachi, Kengo Ohnishi (Oita University)

27 Application of a novel optical sensor for dynamic testing of VentrAssist(TM) rotary blood pump
Jeffrey Tsang (University of Technology, Australia), Nong Zhang, Martin Cook (Ventracor Ltd, Australia)

95 Monogon scanners: analysis and design
Virgil-Florin Duma (Aurel Vlaicu University of Arad, Romania)

284 A New Mechatronical Device for Determining Human Plantar Pressure
Fany Chedevergne (FEMTO-ST, France), Marc Dahan (Institut de Productique, France), Arnaud Faivre

ROOM 7 **MULTIBODY DYNAMICS (MD-3)**

Chairmen : Javier Cuadrado, Janusz Fraczek

840 Energy Analysis of Contacts in Multibody Systems: A Novel Interpretation of the Energetic Coefficient of Restitution
Seyed Ali Modarres Najafabadi (McGill University, Canada), Jozsef Kovecses, Jorge Angeles

932 A Comparison of B-Spline Curves and Pythagorean Hodograph Curves for Multibody Dynamics Simulation
Martin Taendl (University Duisburg-Essen, Germany), Andres Kecskemethy

819 Experimental Validation of a Model-Based Robust Controller for Multi-body Mechanisms with Flexible Links
Roberto Caracciolo (Universita di Padova, Italy), Dario Richiedei, Alberto Trevisani

915 Reactions of Redundant or Singular Constraints in Mechanisms with Rigid Links
Marek Wojtyra (Warsaw University of Technology, Poland), Janusz Fraczek

52 Implementation and efficiency of several geometric stiffening approaches
Javier Cuadrado (University of La Coruna, Spain), Urbano Lugris

745 Mathematical Model for Torsional Vibration Analysis on Internal Combustion Engines
Pablo Meirelles (UNICAMP, Brazil), Douglas Zampieri, Alexandre Mendes (MWM International Motores)

June 19, Tuesday – 14:00-15:00

CONFERENCE HALL **KEYNOTE LECTURE**

Chairman : Philippe Picart

KEY 2 The Specificity of Traction Motors for Railways Application
Dominique Jamet (Alstom, France)

June 19, Tuesday – 15:05-16:45

ROOM 1 **ROBOTICS (RB-6)**

Chairmen : Alon Wolf, Kao Yueh Tsai

150 Initial Test of a Wire-Driven Parallel Suspension System for Low Speed Wind Tunnels
Yaqing Zheng (Huaqiao University)

413 Collision free control of redundant manipulators in a task space
Miroslaw Galicki (Friedrich Schiller University, Germany)

6 On the Sudden Change of Joint Velocity During Fault Tolerant Operations for Manipulators with Multiple Degrees of Redundancy
Jing Zhao (Beijing University of Technology, China), Dengdian Feng

362 6-DOF isotropic parallel manipulators with three PPSR or PRPS chains
Kao Yueh Tsai (Ntust, Taiwan), Ting Kuan Lee

757 A Coordination Scheme for an Asymmetrically Running Quadruped
Kenneth Waldron (Stanford University, U.S.A.)

ROOM 2 GEARING AND TRANSMISSIONS (GT-6)

Chairmen : Victor Starzhinsky, Marco Carricato

599 Processing of Screw Motion Tooth-Gears
Nadejda Prokhorova (Aleksandrov Branch of Russian New University, Russia)

595 Modeling of Cylinder-Conical and Cylinder-Hypoid Gear Transmissions
Nadejda Prokhorova (Aleksandrov Branch of Russian New University, Russia)

119 Constraint analysis of pressure angle of involute elliptical gears
Shanming Luo (Hunan University of Science and Technology, China)), Anhua Chen, Yue Wu (University of Exeter)

640 Dynamic Optimization of spur gears
Marcello Faggioni (University of Modena and Reggio Emilia, Italy), Francesco Pellicano, Gabriele Bertacchi, Angelo Andrisano

252 Gear Abrasion and Impact Result from System Vibration
Zhixin Han (Lanzhou University of Technology, China), Xinqiang Fan (Lanzhou City College)

ROOM 3 TRANSPORTATION MACHINERY (TM-2)

Chairmen : Jaef Knapczyk, Gérard Lallement

822 Modelling the longitudinal dynamics of long freight trains during the braking phase
Luca Pugi (University of Florence, Italy), Duccio Fioravanti, Andrea Rindi

957 Lateral Running of flat belts: The Angled, Conical Pulley
Martin Egger (FH-Wels, Austria), Klaus Hoffmann (TU-Wien,Wien)

100 Improving skid-steering on a 6x6 all-terrain vehicle: A preliminary experimental study
Jean-Christophe Fauroux (LaMI, IFMA, UBP, France), Philippe Vaslin (LIMOS, UBP), Guillaume Douarre (IFMA)

883 Simplified model and experimental insight of partially filled tank vehicles dynamics
Francesco Bottiglione (Politecnico di Bari, Italy), Giacomo Mantriota

861 Simulation of degraded adhesion conditions on a full scale locomotive
Monica Malvezzi (Dipartimento di Energetica S. Stecco, Italy), Benedetto Allotta, Luca Pugi, Andrea Rindi

ROOM 4 EDUCATION (ED-2)

Chairmen : Vytautas Barzdaitis, Valer Dolga

127 DMG-Lib : the "Digital Mechanism and Gear Library" – Project
T. Brix (Technical University of Ilmenau, Germany), U. Doring, B. Corves (RWTH Aachen), K.H. Modler (Technical University of Dresden)

47 An educational software for the analysis and synthesis of planar four bar linkages
Victor Petuya (University of the Basque Country, Spain), Mikel Diez, Charles Pinto, Alfonso Hernandez Country)

896 Complete Machine Development as Multidisciplinary Master Degree Thesis
Andres Diaz (Universidad Politecnica de Madrid, Spain), Isabel Osuna, Pilar Lafont, Hector Lorenzo, Javier Echavarri, José Luis Muéoz

722 The education in Mechatronics at the "Politehnica" University of Timisoara, between tradition and the Bologna declaration
Valer Dolga ("Politehnica" University of Timisoara, Romania), Lia Dolga

375 Integral Application of Extension Theory and TRIZ - Innovative Design of Elliptical Trainer
Hsin-Sheng Lee (National Formosa University, China), Jen-Yu Liu, Yu-Jian Shi

ROOM 5 MICROMECHANISMS (MM-1)

Chairmen : Krzysztof Mianowski, Wisama Khalil

807 Shape and Topology Optimization for Compliant Mechanisms Using Level Set-Based Parameterization Method
Michael Y. Wang (The Chinese University, China), Zhen Luo

684 Flexible building blocks method for the optimal design of compliant mechanisms using piezoelectric material
Mathieu Grossard (CEA List & LAB), Christine Rotinat-Libersa (CEA List), Nicolas Chaillet (LAB), Yann Perrot (CEA List)

894 Optimization assisted design of compliant mechanisms by the level set method
Francois Jouve (Université Paris 7, France), Houari Mechkour (Ecole Polytechnique)

783 Structural Prediction of Peptide Based Nano Systems via Progressive Landscape Evolution
Peter Bohnenkamp (University of Connecticut, U.S.A.), Kazem Kazerounian, Horea Ilies

408 Reference model control of a micro lathe driven by a set of PZT actuators
Eduardo Castillo-Castaneda (Universidad Autonoma de Queretaro, Mexico), Yuichi Okazaki (AIST)

ROOM 6 TRIBOLOGY (TR-1)

Chairmen : Guy Monteil, Vadim Mokshin

443 Comparison in abrasion resistance between hardened 8620 steel
I. Hilerio (UAM Azcapotzalco, Mexico), M. Vite (IPN), T. Mathia (ECL), M.A. Barron (UAM Azcapotzalco), H. Jimenez

354 Influence of surface-active substances on tribological efficiency of twisted nematic liquid crystals as lubricants additives
Vadim Mokshin (Academia, Lithuania), Vladas Vekteris

903 Ground-based verification of mechanisms for in-orbit objects release
Daniele Bortoluzzi (University of Trento, Italy), Matteo Benedetti, Mauro Da Lio, Paolo Bosetti

955 Some theoretical limitation properties of fractal surface
Ihar A Miklashevich (Belarusian National Technical University, Belarus), N.M. Sokolova

688 Optimisation of the design of a series of friction tests for shock-absorber oils
Javier Echevarri (Universidad Politecnica de Madrid, Spain), Jesus Juan, Ramon Gutierrez, Pilar Lafont, José Luis Munoz, Juan Manuel Munoz

ROOM 7 HISTORY OF MMS (HIS-2)

Chairmen : Teun Koetsier, Sergey Jatsun

419 Mechanism of "Man-nen dokei," a Historic Perpetual Chronometer Part1: Celestial Globe and Japanese Traditional Clock
Yasuhiro Yokota (Toshiba R&D Center, Japan), Kazuyoshi Suzuki (National Science Museum), Mitsunobu Yoshida (Toshiba R&D Center), Takehiro Hato, Yuji Kubota

420 Mechanism of "Man-nen dokei," a Historic Perpetual Chronometer – Part 2 : Power Supply
Takehiro Hato (Toshiba R&D Center, Japan), Kazuyoshi Suzuki (National Science Museum), Yoichi Tomii (Kyoto University), Mitsunobu Yoshida (Toshiba R&D Center), Yasuhiro Yokota, Yuji Kubota

70 On the Teaching of Mechanical in The Netherlands in the early 19th Century : The Work of G. J. Verdam (1802-1866)
Wijnand Rekers (Vrije Universiteit, The Netherlands), Teun Koetsier

379 Machines imitating living creatures motion : historical overview
Teresa Zielinska (Warsaw University of Technology, Poland)

236 Renaissance of machines: from Brunelleschi to Galilei through Francesco di Giorgio and Leonardo

Marco Ceccarelli (University of Cassino, Italy)

June 19, Tuesday – 17:00-19:00

ROOM 1 ROBOTICS (RB-7)

Chairmen : Tian Huang, Jayant Modak

109 The Class of Hybrid Parallel Mechanisms 3(JRS)
Alexandru Nastase (Univ. "Dunarea de Jos" Galati, Romania)

329 Force-Moment Capabilities of Redundantly-Actuated Planar-Parallel Architectures
Scott Nokleby (University of Ontario, Canada), Flavio Firmani (University of Victoria), Alp Zibil, Ron Podhorodeski

398 Modeling of the Bennett's linkage as leg of a mobile robot
A.A. Oliveira Jr (Federal University of Uberlandia, Brazil), J.C.M. Carvalho

780 The Design of High Precision Parallel Mechanisms using Binary Actuation and Elastic Averaging : With Application to MRI Cancer Treatment
Lauren De Vita (Massachusetts Institute of Technology, U.S.A.), J.S. Plante, Steven Dubowsky

673 Dynamics analysis of a 5-UPS/PRPU parallel machine tool
Yongsheng Zhao (Yanshan University, P. R. China), Yulei Hou, Yi Shi, Ling Lu

560 Semi-Analytical Approach for Stiffness Estimation of PKM having Complex Machine Frames
Youyu Wang (Tianjin University, P.R. China)), Tian Huang, Derek G. Chetwynd (Warwick University)

ROOM 2 GEARING AND TRANSMISSIONS (GT-7)

Chairmen : Vu-Thinh Nguyen, Weidong He

667 Test Research on Two Motors Driven Double Crank Ring-Plate-Type Pin-Cycloid-Gear Planetary Drive
Weidong He (Dalian Jiaotong University, China), Lixing Li, Xin Li (University of Maryland, USA)

159 Fast determination of global and local parameters for reducing transmission error of helical gears
Jean-Pierre De Vaujany (INSA de Lyon, France), Michèle Guingand, Yann Hiltcher

421 A Regularization Method for Hypoid Gear Synthesis Using the Invariant Approach
Marco Gabiccini (Universita di Pisa, Italy), Alessio Artoni, Francesca Di Puccio, Massimo Guiggiani

632 Gear vibration reduction using genetic algorithms
Marco Barbieri (University of Modena and Reggio Emilia, Italy), Giorgio Bonori, Giorgio Scagliarini, Francesco Pellicano

125 Tooth Thickness of Dual Toroid Enveloping Worm
Yaping Zhao (College of Mechanical Engineering, China), Wenjun Wei, Xuezhu Dong

ROOM 3 COMPUTATIONAL KINEMATICS (CK-6)

Chairmen : Chintien Huang, Jacques Hervé

837 Kinematic synthesis of a mechanism able to reproduce the blood flow in arteries
Sofia Abreu (University of Minho, Portugal), Paulo Flores, Eurico Seabra, Filipa Carneiro, Senhorinha Teixeira,
José Teixeira

223 Contributions on the dynamic synthesis of crank-slider mechanisms actuated by springs
Daniela Tarnita (University of Craiova, Romania), Dumitru Bolcu

80 A general procedure for the mobility and singularity analysis of kinematical chains including branch identification
Igor Fernandez-Bustos (Dpto. Ingenieria Mecanica, Spain), Josu Agirrebeitia, Rafael Aviles

541 On the Linear Line Complex and Helicoidal Vector Field Associated with Homologous Lines of a Finite Displacement
Chintien Huang (National Cheng Kung University, Taiwan), Wuchang Kuo, Bahram Ravani (University of California, USA)

576 Centrodes and Lie algebra
J.M. Selig (London South Bank University, U.K.)

286 A Linear Solution of the Kinematic Registration Problem Using Line Approximation
Jasem Baroon (University of California, U.S.A.), Bahram Ravani

ROOM 4 LINKAGES AND CAMS (LC-5)

Chairmen : Yu-Tin Lin, Abdullah Dwairi

202 Research and Application of Displacement Laws of Electronic Cams
Miroslav Vaclavik (VUTS Liberec, Czech Republic), Petr Jirasko (VUTS Liberec)

925 The Ratchet and Pawl Ring (RaPR) Mechanism
John Kennedy (Dynamic Structures and Materials, U.S.A.), Larry Howell (Brigham Young University)

256 Analysis of a new planar 3-DOF parallel manipulator with two PPR chains
Woosung In (Seoul National University, Korea), Seongjune Bae, Jongwon Kim

92 TRIZ applied to establish Mobility of some Mechanisms
Simona-Mariana Cretu (University of Craiova, Romania)

546 Structural Synthesis of Compliant Translational Mechanisms
Yu-Tin Lin (National Taiwan University, Taiwan), Jyh-Jone Lee

453 Curvature Analysis of Variable Pitch Lead Screw Mechanisms Having Screw Ribs with Uniform Thickness
Jer-Rong Jang (National Cheng Kung University, P.R. China), Shen-Tarng Chiou, Chong-Guang Chen

ROOM 5 MICROMECHANISMS (MM-2)

Chairmen : Teru Hayashi, Mathias Husing

283 The Design of a Long-Range Single-Axis Nanometer Positioning System
Jau-Liang Chen (National Chung Hsing University, Taiwan), Martinus Wijaya

495 Impulse-driven Capsule by Coil-induced Magnetic Field Implementation
Takahiro Ito (Toin University, Yokohama, Japan), Takuto Ogushi, Teru Hayashi (Ogasawara Precision Laboratory)

646 Mechanism Design of Multi-Degrees of Freedom Nano-positioner
Tung Li Wu (National Taiwan University, Taiwan), Shuo Hung Chang

ROOM 6 TRIBOLOGY (TR-2)

Chairmen : Jianbin Luo, Ihar Miklashevich

621 The advance of interaction between nanoparticles and solid surface in chemical mechanical polishing
Jianbin Luo (China), Dan Guo

68 Influence of Machine Tool Setting Parameters on EHD Lubrication in Hypoid Gears
Vilmos Simon (Budapest University of Technology, Hungary)

793 Chemical-mechanical polishing of Ni-P plated AlMg alloy substrates for high-density perpendicular magnetic recording

Weiming Lee (R & D, Dept. Kaifa Magnetic Recording Co., P.R. China), Zuqing Qi, Wanjia Lu

547 Opening Force Analytical Model for Dynamic Response Analysis of Hydrodynamic Face Seal
Ke Liu (Tsinghua University, China), Ying Liu, Xiangfeng Liu

ROOM 7 ROTOR DYNAMICS (RD-1)

Chairmen :Oleg Kirillov, Régis Dufour

485 A Low Cycle Fatigue Analysis on a Steam Turbine Bladed Disk-Case Study
José Carlos Pereira (Federal University of Santa Catarina, Brazil), Luiz Augusto de Mello Torres (Tractebel Energia S. A.), Edison Dda Rosa (Federal University of Santa Catarina), Helder Bindewald

175 Dynamic Analysis of the Rotor-Stator Contact due to Blade Loss
Sanjin Braut (University of Rijeka, Croatia), Roberto Zigulic, Ante Skoblar, Goranka Stimac, Mirko Butkovic, Marko Jokic (Polytechnic of Karlovac, Croatia)

627 Modeling, Simulation and Testing of Gas Bearing Kit
Vytautas Barzdaitis (Kaunas University of Technology, Lithuania), Vytautas Zemaitis, Vytautas Barzdaitis (Vytautas Magnus University)

318 New Theory of Rotor Dynamics: Dynamics of Jeffcott Rotor with Moment Unbalance
Alexandr Zhivotov ("Yuzhnoye" Design Office, Ukraine)

438 A subspace approach for the analysis of blade tip timing data
Bendali Salhi (FEMTO-ST, France), Joseph Lardies, Marc Berthillier, Philippe Voinis, Charles Bodel

349 Analytic, numeric and experimental study of hydrostatic journal bearings behaviour for grinding machines
Harkaitz Urreta (MGEP, Basque Country), Mikel Zubieta, Maria Jesus Elejabarrieta, Hugo Salinas (IDEKO), Mounir Bou-Ali (MGEP)

June 20, Wednesday

08:10 – 10:10

ROOM 1 ROBOTICS (RB-8)

Chairmen : Miroslaw Galicki, Johannes Kloppenburg

537 Obtaining Adjacent Configurations with Minimum Time Considering Robot Dynamics
Fares Abu-Dakka (Universidad Politecnica de Valencia, Spain), Francisco Valero, Allan Tubaileh (Birzeit University), Francisco Rubio (Universidad Politecnica de Valencia)

707 Singularity Based Calibration of 3-DOF Fully Parallel Planar Manipulators
Philipp Last (IWF, TU Braunschweig, Germany), Daniel Schuetz, Annika Raatz, Juergen Hesselbach

549 An algebraic formulation of exact force-, moment-isotropy in spatial parallel manipulators
Sandipan Bandyopadhyay (Indian Institute of Science, India), Ashitava Ghosal

655 Special new configuration of wheeled robot to work over uneven terrain : sand, mud and snow
Teodor Akinfiev (IAI CSIC, Spain), Manuel Armada, Adriana Ramirez

538 Type Synthesis of 3T1R Fully-Parallel Manipulators Using a Group-Theoretic Approach
Oscar Salgado (Spain), Oscar Altuzarra, Victor Petuya, Hernandez Alfonso

496 A multi-objective optimization for designing service robots
Cristina Castejon (Spain), Giuseppe Carbone, Juan Carlos Garcia-Prada, Marco Ceccarelli

08:10 – 10:10

ROOM 2 **GEARING AND TRANSMISSIONS (GT-8)**

Chairmen : V.I. Goldfarb, J.P. de Vaujany

782 Toward a greater industrial application of variable radius gearing
Guido A. Danieli (University of Calabria, Italy)

796 Driving Performance and Strength of Pin-Rack Gear Mechanism
Kiyotaka Ikejo (Hiroshima University, Japan), Kazuteru Nagamura, Eiichirou Tanaka, Koji Yamamoto (Tosoh Corporation)

592 Loaded contact analysis and mesh control on double-enveloping hourglass worm gearing
Datong Qin (Chongqing University, P.R. China), Wankai Shi, Wujiao Xu

827 Development of an automatic design algorithm for multi-stage gear drives
Inho Bae (STech&H Co. Ltd., South Korea), Young-Il Kwon, Tae Hyong Chong (Hanyang University)

265 Geometrical Design of Conical Gear Drives with Profile-shifted Transmission
Shyi-Jeng Tsai (National Central University, Taiwan), Szu-Han Wu

08:10 – 10:10

ROOM 3 **COMPUTATIONAL KINEMATICS (CK-7)**

Chairmen : Manfred Husty, Jasem Baroon

681 On A Nine-Bar Mechanism, Its Possible Configurations And Conditions For Flexibility
Dominic Walter (University Innsbruck, Austria), Manfred Husty

718 A Method to Determine the Motion of Overconstrained 6R-Mechanisms
Martin Pfurner (University Innsbruck, Austria), Manfred Husty

526 Cupola Linkages
Karl Wohlhart (TU-Graz, Austria)

940 A new tool to investigate the interactions between elastic fibers and rigid bodies
Riccardo Franci (University of Bologna, Italy), Vincenzo Parenti Castelli

165 Exact interval propagation for the efficient solution of planar linkages
Enric Celaya (Institut de Robotica i Informatica Industrial, Spain), Tom Creemers, Lluis Ros

446 About a new method for the 3D determination of the human spine geometry
Marius Mateas (Universitatea "Politehnica" din Timisoara, Romania), Valeria Vacarescu, Erwin-Christian Lovasz, Ioan Dan Aurelian Nemes, Mihai Mircea

08:10 – 10:10

ROOM 4 **MECHATRONICS (ME-5)**

Chairmen : Yasuhiro Yokota, Horia Panaitopol

96 Mathematical and experimental analysis of the polygon scanners
Virgil-Florin Duma (Aurel Vlaicu University of Arad, Romania)

39 Experimental identification of a pneumatic open loop servovalve
Laura Gastaldi (Politecnico di Torino, Italy), Stefano Pastorelli, Massimo Sorli

885 Calculation of fluid leakage in ball valves
Francesco Bottiglione (Politecnico di Bari, Italy), Giuseppe Carbone, Giacomo Mantriota

871 Scavenging energy from a vibrating beam using an electromagnetic transducer
Didier Mammosser (FEMTO-ST, France), Emmanuel Foltête, Manuel Collet

663 Design of Passive Suspensions to Reduce Actuator Control Effort
Machhindra Pable (IIT Bombay, India), P. Seshu

534 Dynamic Analysis on a Hula Hoop Functioning as a Motion Transformer
C. C. Wang (National Tsing-Hua University, Taiwan), Cheng-Kuo Sung (National Chiao Tung

University), Paul Chang Po Chao

08:10 – 10:10

ROOM 5 HUMAN-MACHINE SYSTEMS (HMS-1)

Chairmen : Katsumi Inoue, Giovanni Mimmi

803 Research and Development of a Wheelchair Design System
Jenq-Huey Shyu (National Taipei University of Technology, Taiwan), Yu- Zhen Hsu

864 Pedalling Strength Analysis in Pathological and Non-pathological Subjects on Cycle-ergometer Instrumented with Three-components Pedals
Giovanni Mimmi (Universita degli studi di Pavia, Italy), Carlo Rottenbacher, Giovanni Bonandrini

604 Biomechanical analysis of the normal and reconstructed human hand: Prediction of muscle forces in pinch and grasp
Amani Ben Sghaier (LGM, ENIM, France), Lotfi Romdhane (LGM ,ENISo), Fethi Ben Ouezdou (LISV-UVSQ)

860 A Task Specific Kinematic Design Methodology with Application to a 4-DOF Haptic Interface
Ulrich Spaelter (Ecole Polytechnique Fédérale de Lausanne, Suisse), Hannes Bleuler

434 Methodology of evaluating the driver's attention and vigilance level in an automobile transportation using intelligent sensor architecture and fuzzy logic
Alessandro Giusti (Politecnico di Milano, Italy), Chiara Zocchi, Alessandro Adami, Francesco Scaramellini, Alberto Rovetta

797 Haptic interaction with virtual mechanical systems
Csaba Antonya (University Transilvania of Brasov, Romania), Tiberiu Butnaru, Doru Talaba

08:10 – 10:10

ROOM 6 RELIABILITY OF MACHINES AND MECHANISMS (RMM-2)

Chairmen : Irina Demiyanushko, Trevor Davies

601 The efficiency of dynamic stabilization of frictional disks nonflatness
Oleg Berestnev (Belarus), Wladimir Antonjuk

920 Incipient bearing fault diagnosis using DWT for feature extraction
Juan Garcia (UC3M, Spain), Cristina Castejon, Omar Lara

368 The Practice of the Applying Acoustic Emission Phenomena for Nondestructive Control and Diagnosing of Technical State of Manufactured Articles
Vilen Royzman (Ukraine), Andrew Goroshko, Igor Kovtun

515 Results and problems of the geometry of hinged devices
Mikhail Kovalev (BMSTU, Russia)

851 Systems Engineering Frame Concept
Konstantin Frolov (The Russian Academy of Sciences, Russia)

285 Simple examples of dual coupling networks
Trevor Davies (Loughborough University, U.K.)

08:10 – 10:10

ROOM 7 ROTOR DYNAMICS (RD-2)

Chairmen : R. Nordmann, Marc Berthillier

21 Gyroscopic stabilization in presence of non-conservative forces
Oleg Kirillov (Moscow State Lomonosov University, Russia)

701 Disappearance of Critical Rotor Speed / Sealing Ring as Suppressor of Rotor Oscillations
Andrey Nikiforov (Mechanical Engineering Research Institute, Russia), Ludmila Banakh, Grigory Panovko, Alexsandr Shohin

327 Study of magnetic actuator parameters influence in the magnetic force

R.M. Furtado (UNICAMP, Brazil), Z.C. Silveira, K.L. Cavalca, N. Butzek (TU, Darmstadt, Germany), R. Nordmann

773 Stick/Slip Phenomena in Dynamics : Choice of Contact Model. Numerical Predictions & Experiments
Eric Chatelet (INSA de Lyon, France), Guilhem Michon, Lionel Manin, Georges Jacquet

302 Study on Rotor Critical Speeds Optimal Adjustment to Disks Positions
Zhansheng Liu (School of Energy Science and Engineering, China), Donghua Wang, Ye Zhang

160 The procedure for investigation of the influence of sucking the air into the short fluid film bearings on the nonlinear and chaotic vibration of flexible rotors
Jaroslav Zapomel (Technical University of Ostrava, Czech Republic)

June 20, Wednesday – 10:30-12:50

ROOM 1 LINKAGES AND CAMS (LC-6)

Chairmen : Chao Chen, Larry Howell

839 Gravity balancers with only spring connections to ground
Just Herder (Delft University of Technology, The Netherlands)

311 Kinematic Synthesis of an Eight-Bar Linkage to Visit Eleven Poses Exactly
Chao Chen (University of Toronto, Canada), Jorge Angeles (McGill University)

396 Double Dwell Linkage Mechanisms for Prolonged Dwells
C. Amarnath (IIT Bombay, India), Anirban Guha

436 On the 3D crawling mechanical structures
Dan Margineanu (Universitatea e Politehnica e Timisoara, Romania), Erwin Christian Lovasz, Karl-Heinz Modler (Technische Universitaet Dresden, Germany), Dan Perju (Universitatea e Politehnica e Timisoara), Claudiu Noll), Mandiuc Mircea

950 Design Procedure of Elastic and Safety Clutch using Cam Mechanisms
Ioan Stroe ("Transilvania" University of Brasov, Romania)

742 About optimal synthesis of complex planar mechanism
Milan Kostic (Faculty of Technical Sciences, Serbia), Maja Cavic, Miodrag Zlokolica

744 Position analysis of the High Class Kinematic Group Mechanisms
Maja Cavic (Faculty of Technical Sciences, Serbia), Milan Kostic, Miodrag Zlokolica

ROOM 2 GEARING AND TRANSMISSIONS (GT-9)

Chairmen : Kiyotaka Ikejo, Marcello Faggioni

836 Tooth Contact Analysis of the General Spatial Involute Gearing
Chintien Huang (National Cheng Kung University, Taiwan), Po-Chun Liu, Shih-Chieh Hung

946 Diagnostic of a helical gear transmission exploiting inverter control measurements
Marco Pedrinelli (Politecnico di Milano, Italy), Roberto Ricci, Paolo Pennacchi

686 Automatic CAD-FEM procedure for gear analysis
Angelo Oreste Andrisano (Universite di Modena e Reggio Emilia, Italy), Gabriele Bertacchi, Marcello Faggioni

390 Tooth Contact Analysis and Contact Ellipse Simulation of Internal Conical Gear Pairs
Chia-Chang Liu (Ching Yun University, Taiwan), Sheng-Feng Wang

578 A Novel Method for Manufacturing Shaving Cutter with High Stiffness
Jen-Kuei Hsieh (Taiwan), Shinn-Liang Chang, Uei-Der Wu, Ching-Huan Tseng

867 Theoretical Analysis of Internal Lobe Pumps
Giovanni Mimmi (Universita degli studi di Pavia, Italy), Giovanni Bonandrini, Carlo Rottenbacher

194 Artificial intelligence aided design of gears based on graph-theoretical models
Stanislaw Zawislak (University of Bielsko-Biala, Poland)

ROOM 3 ROBOTICS (RB-9)

Chairmen : Christian Mascle, Thomas Thuemmel

573 Stabilization of a circular ball-and-beam system with large basin of attraction
Yannick Aoustin (IRCCyN, France), Alexander Formal'sky (Lomonosov University)

587 Active roll control using reinforcement learning for a single unit vehicle
Maria J.L. Boada (Carlos III University, Spain), Beatriz L. Boada, Alejandro Quesada, Antonio Gauchia, Vicente Diaz

568 Optimum Static Balancing of the Parallel Robot for Medical 3D-Ultrasound Imaging
Simon Lessard (Ecole de Technologie Supérieure, Canada), Ilian Bonev, Pascal Bigras), Sébastien Briot (INSA), Vigen Arakelian

649 Error Analysis on a Tripod Parallel Machine Tool Based on D-H Parameters Differential Transform
Jinsheng Wang (Northeastern University, China), Yadong Gong, Guangqi Cai, Jiashun Shi, Xuefeng Bi

521 Analysis of Stewart platform with flexural joints at singular configurations
Pulkit Kapur (Punjab Engineering College, India), R. Ranganath (ISRO Satellite Centre, India), B. S. Nataraju

612 An alternative procedure for type synthesis of parallel mechanisms
Tarcisio Hess-Coelho (University of Sao Paulo, Brazil)

841 Mechanical Design, Control Choices and First Return of Use of a Prosthetic Arm
Guillaume Thomann (Institut de Technology de Grenoble, France), Vincent Artigue (Tech.Innovation)

ROOM 4 ROBOTICS (RB-16)

Chairmen : Bodo Heimann, Yves Papegay

771 Analysis of a High Resolution Planar PKM
Olivier Company (LIRMM, France), Sébastien Krut, François Pierrot

916 Motion kinematics analysis of wheeled-legged rover over 3D surface with posture adaptation
Christophe Grand (Laboratoire de Robotique de Paris, France), Faiz BenAmar, Frédéric Plumet

772 Restricted Minimum-Effort Motion Planning for Serial Manipulators
Andreas Hussong (Leibniz University of Hannover, Germany), Bodo Heimann

753 Trajectory planning of a redundant parallel manipulator changing of
Ofelia Alba-Gomez (Instituto Tecnologico de la Laguna, Mexico), José-Alfonso Pamanes, Philippe Wenger (IRCCyN, France)

951 Manipulability Based Path and Trajectory Planning for Hybrid Mobility Climbing
Jaime Bestard (Wright-Patterson AFB, Ohio, U.S.A.), Gloria Wiens (University of Florida)

938 Towards principles for the design of a form-closure capable underactuated pneumatic hand
Vincent Begoc (LIRMM/B+DEVELOPMENT, France), Sébastien Krut (LIRMM), Etienner Dombre, François Pierrot, Claude Durand (B+ DEVELOPMENT)

821 Walking Robots for Education and Professional Application
Teresa Zielinska (Warsaw University of Technology, Poland), Dariusz Metrak, Tomasz Pawlak, John Heng (Nanyang Technological University), Chee-Meng Chew (National University of Singapore)

ROOM 5 **HUMAN-MACHINE SYSTEMS (HMS-2)**

Chairmen : Konstanty Skalski, Evangelos Papadopoulos

341 Defining requirements of a risk assessment tool - a case in industrial maintenance
Salla Lind (Technical Research Centre of Finland), Jouni Kivistc Rahnasto (Tampere University of Technology), Sanna Nenonen, Matti Luoto

298 MR compatibility of an intraoperative robot
Jani Virtanen (Finland), Kalervo Nevala

511 Improvement plan of automatic page turning machine through experiments with a prototype
Tomoya Masuyama (Tsuruoka National College of Technology, Japan), Eigo Sakagami (Nissan Motor Co., Ltd.), Katsumi Inoue (Tohoku University)

918 Design of an Exoskeleton Mechanism for the Shoulder Joint
Evangelos Papadopoulos (National Technical University of Athens, Greece), Georgios Patsianis

891 Studies on Reach Probability of Stochastic Dyads for Digital Human Modeling
Sarath Reddi (Indian Institute of Science, India), Dibakar Sen

939 A new approach to solve constraint forces of virtual fixtures in haptic rendering
Pierre Joli (Evry Val d'Essonne University, France), Shahram Payandeh (Simon Fraser University), Mavis Chan, Benjamin Bayart (Evry Val d'Essonne University, France)

417 Development of a Walking Support System with Motion Assist Functions
Tadaaki Ikehara (Tokyo Metroporitan College of Industrial Technology, Japan), Eiichiro Tanaka (Hiroshima University), Takanobu Tamiya, Naoki Fukaya (Tokyo Metroporitan College of Industrial Technology), Kazuteru Nagamura (Hiroshima University)

ROOM 6 **DYNAMICS OF MACHINERY (DY)**

Chairmen : R. Silin, Joseph Lardies

855 Vibrational Technologies And Machines For The Processing Of Mineral And Technogeneous Raw Materials: Theory, New Ideas, New Constructions
Iliya Blekhman (Mekhanobr-Tekhnika Corp., Russia), Leonid Vaisberg

842 Use of Stiffness/Damping/Natural Frequency Criteria in Vibration Control
Eugene I. Rivin (Wayne State University, U.S.A.)

809 Modelling of the axial load of the endless band-saw
Jozef Wojnarowski (Politechnika Slaska, Poland), Wladyslaw Kalinski

805 The Dynamics Analysis of a New Type of Tripod Sliding Universal Joint
Degong Chang (Qingdao University of Science and Technology, China), Li Li (Beijing University of Chemical Technology), Shan He (Paderborn University)

979 Mechanisms dynamic of variable structure with geometric connections
Assylbek Dzhomartov (Institute of Mechanics and Machine Sciences, Kazakhstan), Gakhip Ualiyev

372 Contribution to the Modal Behavior Problems of Hydraulic Systems
Frantisek Pochyly (Brno University of Technology, Czech Republic), Eduard Malenovsky

886 Real-time estimation of the telescopic handler center of mass
Giulio Rosati (University of Padua, Italy), Andrea Biondi, Giovanni Boschetti, Aldo Rossi

ROOM 7 **MULTIBODY DYNAMICS (MD-4)**

Chairmen : Pablo Meirelles, Ali Rahmani Hanzaki

652 Impact with friction in planar flexible multibody systems: Application of the momentum-balance approach
Mayo Juana (University of Seville, Spain)

911 Real-Time Dynamics of Multibody Systems: Energy Conserving and Projection Methods

Daniel Dopico (University of La Coruna, Spain), Manuel Gonzalez, Urbano Lugris, Javier Cuadrado, Juan Carlos Garcea (Technical University of Madrid, Spain)

439 Coupled Deformation Modes in the Finite Element Absolute Nodal Coordinate Formulation
Bassam Hussein (University of Illinois, U.S.A.), Hiroyuki Sugiyama (University of Tokyo, Japan), Ahmed Shabana (University of Illinois)

817 Component mode synthesis for multibody systems with absolute coordinates
Johannes Gerstmayr (University of Linz)

846 Modelling and Analysis of an Autonomous Underwater Vehicle Via Multibody System Dynamics
Hongwei Zhang (Tianjin University, P.R. China)), Shuxin Wang

736 Some recent developments in bicycle dynamics
Arend Schwab (Delft University of Technology, The Netherlands), Jaap Meijaard (The University of Nottingham), Jodi Kooijman (Delft University of Technology)

64 Dynamics of over-constrained rigid and flexible multibody systems
Evtim Zahariev (Academy of Sciences, Bulgaria), Javier Cuadrado (University of La Coruna, Spain)

June 20, Wednesday – 14:00-15:30

CONFERENCE HALL **KEYNOTE LECTURES**
Chairman : Jean-Pierre Merlet

KEY 3 A Microassembly System for Manufacturing Hybrid MEMS
Bradley J. Nelson (ETH Zurich, Switzerland)

KEY 4 Human Powered Flywheel Motor : Concept, Design, Dynamics and Applications
Jayant P. Modak (Priyadarshimi College – India)

June 20, Wednesday – 14:00-16:30

EXHIBITION HALL **POSTER PRESENTATIONS (P1)**

BIOMECHANICS (BIO-P1)

976 A Compliant Dynamic FEA Model of the Aortic Valve
Adrian Ranga (McGill University, Canada), Rosaire Mongrain, Youssef Biadillah, Raymond Cartier (Montreal Heart Institute)

917 Application Of A Ct Cad Cae System To Preoperative Planing And Post-Operative Estimation Of Vertebroplasty
Konstanty Skalski (Warsaw University of Technology, Poland), Krzysztof Kedzior, Jozef Skoworodko, Krzysztof Kwiatkowski (Military Institute of the Health Service, Poland), Wojciech Cejmer

133 Studies by Finite Element Method of some Devices for Treatment
Arjana Davidescu (ARoTMM, Romania), Carmen Sticlaru

134 Comparative Study of Fixation Devices for Intertrochanteric Fractures
Carmen Sticlaru (ARoTMM, Romania), Arjana Davidescu

COMPUTATIONAL KINEMATICS (CK-P1)

300 CAD Solving Kinematics of a Spatial 4SPS & UPU Parallel Manipulator
Lu Yi (Finland), Tatu Leinonen

945 On the study of Ellipsograph Mechanisms
Meng-Hui Hsu (Kun Shan University, Taiwan), Yu-Gang Chen (Far East University), Jen-Yu Liu (National Formosa University), Long-Chang Hsieh, Fu-Chen Chen (Kun Shan University)

625 The Application of an ANFIS and BP Neural Network Method in Vehicle Shift Decision
Xue-Xiu Li (Shanghai Jiaotong University, China), Hu Huang (Shanghai University of Engineering Science), Chong-Hong Liu

724 Performance Improvement of a Punching Mechanism for Flexible Printed Circuit Boards
Der-Min Tsay (National Sun Yat-Sen University, Taiwan), Hsin-Pao Chen, Wei-Chih Shih, Chun-Yu Hsueh, Tzuen-Lih Chern

630 Prototype of a rotary hoe for intra-row weeding
Zoltan Gobor (Institute for Agricultural Engineering, University of Bonn, Germany), Peter Schulze Lammers

762 The moving equation for the physical pendulum with clearance in the joint
Jan Cristian Grigore (University of Pitesti, Romania), Constantin Onescu, Nicolae Pandrea

597 The matrical iterative method and the calculation algorithms for the cinematic analyze of spatial mechanisms
Marina Pandrea (University of Pitesti, Romania), Nicolae Pandrea, Dinel Popa

799 Biomechanical analysis of shoulder joint movement by means of optimization methods
Marek Surowiec (Warsaw University of Technology, Poland), Janusz Fraczek Poland)

656 Representations of constraints imposed by kinematic chains of parallel mechanisms
Victor Glazunov (Mechanical Enginneering Research Institute, Russia), Roman Gruntovich, Alexey Lastochkin, Nguen Nguen Mingh Than (HoChiMinh City, University of Technology)

DESIGN METHODOLOGY (DM-P1)

715 Applications of the Discrete Element Simulation Method within the Development of Machines and Mechanisms
Ulrich Hoppe (IGM, RWTH Aachen, Germany), Burkhard Corves

GEARING AND TRANSMISSIONS (GT-P1)

332 Study on New Device for Friction Disc Dynamic Strength Test
Keyan Ning (China North Vehicle Research Institute, P.R. China), Guangming Zhou, Mingcheng Wang

679 The kinematics analyses of the planetary cylindrical gears
Victor Moise (University Politechnica of Bucharest, Romania), Iulian Alexandru Tabara

790 On the bending and surface fatigues of an engaging spur gear pair
Ah-Der Lin (Cheng Shiu University, Taiwan), Jao-Hwa Kuang (National Sun Yat-Sen University, Taiwan)

353 The Rack-Pinion Gears For Steering Gear Box With Variable Transmition Ratio
Petre Alexandru (Transilvania University of Brasov, Romania)

550 Reliability-based Sensitivity Design of Gear Pairs
Y.M. Zhang (Northeastern University, China), Q.L. Liu (Jilin University), B.C. Wen (Northeastern University)

750 Thermodynamic and dynamic analysis of an internal combustion engine with a noncircular-gear based modified crank-slider mechanism
Hector Fabio Quintero (Universidad Tecnologica de Pereira, Colombia), Carlos Alberto Romero, Libardo Vicente Vanegas Useche

792 Design, analysis, and fabrication of a differential pump driven by Whitworth mechanisms
Ming Chen (Harbin Institute of Technology, China), Yong Zhang

LINKAGES AND CAMS (LC-P1)

MULTIBODY DYNAMICS (MD-P1)

Zhao-Cai Du (Beijing University of Technology, China), Yue-Qing Yu, Li-Ying Su

954 Theoretical and experimental modeling of the dynamic response of the mechanisms with deformable kinematic elements
Nicolae Dumitru (University of Craiova, Romania), Mirela Cherciu, Zuhair Althahbi

330 Dynamic model of a flexible 5R parallel robot
Zhao-cai Du (Beijing University of Technology, China), Yue-Qing Yu, Jian-Xin Yang

306 Estimation of the Dynamic Parameters of Dynamic Model of lever mechanisms on the Stage of the Initial Design.
Valentina V. Kuzlyakina (Vladivostok, Russia), Ludmila A. Brazhnik

371 Sur la dynamique des structures mécaniques mobiles
Amedeu Oranescu (Universite "Dunarea de Jos" Galati, Romania), Elena Mereuta, Silvia Bejenaru, Madalina Rus

431 Stabilization of load position for offshore cranes
Andrzej Maczynski (University of Bielsko-Biala, Poland), Stanislaw Wojciech

843 Cluster Computing of Mechanisms Dynamics using Recursive Formulation
Pawea Malczyk (Warsaw University of Technology, Poland), Janusz Fraczek

June 21, Thursday

08:30 – 10:10

ROOM 1 **LINKAGES AND CAMS (LC-7)**

Chairmen : Po-Young Lin, Stéphane Caro

482 Bricard Mechanism Used as Translator
Laurentiu Racila (FEMTO-ST, France), Marc Dahan (Institut de Productique, France)

863 New approach for optimum synthesis of six-bar dwell mechanisms by adaptive curve fitting
Huimin Dong (Dalian University of Technology, China), Delun Wang

384 Design of statically balanced planar four-bar linkages with base-attached springs
Win-Bin Shieh (Mingchi University of Technology, Taiwan), Dar-Zen Chen (National Taiwan University), Po-Young Lin

811 Analytical Synthesis of Centric Drag-Link Mechanisms for Delay Generation
Abdullah Dwairi (Jordania)

645 Study on the Mechanism Design of a Multi-Function Sickbed with the Capability of Making Patient Lie on Side
Ching-Kong Chen (National Taipei University of Technology, Taiwan), Sheng-Wen Hu

08:10 – 10:10

ROOM 2 **MECHATRONICS (ME-6)**

Chairmen : Roberto Caracciolo, Luc Baron

313 Single Vane Pumping Mechanism
Ricardo Chicurel-Uziel (National University of Mexico)

12 Active Control of Structural Vibrations by Imposed Eigenstrains
Franz Ziegler (TU Vienna)

738 Smooth High Precision Contact Posision Control of Rotating Cylinders with Hydraulic Actuators

Michel Cotsaftis (ECE, France), Erno Keskinen (TUT)

709 Performance Analysis of a Delayed Reference Controller for Active Swing Suppression in Trolley-Pendulum Systems
Roberto Caracciolo (Universita di Padova, Italy), Dario Richiedei, Alberto Trevisani

63 Modelling and Examining of Torsionally Vibrating Discrete-Continuous Mechatronical Systems
Andrzej Buchacz (Silesian University of Technology, Poland)

08:10 – 10:10

ROOM 3 ROBOTICS (RB-10)

Chairmen : Oscar Altuzarra, Philipp Last

642 A Robotic Teleoperation System Based on Force Reflecting and Delayed Reference Control
Alessandro Gasparetto (Universita di Udine, Italy), Renato Vidoni, Vanni Zanotto

680 The Project of autonomous group of 2-wheeled mobile robots
Tomasz Buratowski (University of Science and Technology, Poland), Tadeusz Uhl, Grzegorz Chmaj

682 Mechanical hand manipulation planning using an exoskeleton
Marc Arsicault (LMS Poitiers, France), Jean-Pierre Gazeau, Said Zeghloul

713 Development of Navi-Robot, a New Assistant for the Orthopaedic Surgical Room
Demetrio Moschella (Calabrian High Tech, Italy), Gianluca Gatti (Univ. Calabria), Francesco Igino Cosco (Calabrian High Tech), Edoardo Aulicino, Paola Nudo, Guido A. Danieli (Univ. Calabria)

610 Workspace optimization of 3 RSS+CP parallel mechanisms
Tarcisio Hess-Coelho (University of Sao Paulo, Brazil), Fernando Malvezzi (Escola de Engenharia Maua)

543 Trajectory tracking for SCARA robots with compliant transmissions: a technique to improve the positioning precision
Giovanni Incerti (University Brescia, Italy)

08:10 – 10:10

ROOM 4 ROBOTICS (RB-17)

Chairmen : Leila Notash, Yannick Aoustin

747 Enhancing tracking performances of parallel kinematic machines
Flavien Paccot (LASMEA, France), Nicolas Andreff (LAMI/LASMEA), Philippe Martinet (LASMEA)

752 Singularity Analysis of PAMINSA Manipulators
Sébastien Briot (INSA de Rennes, France), Vigen Arakélian

919 Innovative concept of unfoldable wheel with an active contact adaptation mechanism
Christophe Grand (Laboratoire de Robotique de Paris, France), Philippe Bidaud, Nathanaël Jarrassé

789 Fuzzy Logic-Based Adaptive Robust Control for Parallel Manipulators
Meysar Zeinali (Queen's University, Canada), Leila Notash

848 Antagonistic Stiffness in Cable-driven Mechanisms
Saeed Behzadipour (Canada), Mojtaba Azadi Sohi

934 Rotating Table with Parallel Kinematic Featuring a Planar Joint
Stefan Bracher (Ecole Polytechnique, Canada), Luc Baron, Xiaoyu Wang

08:30 – 10:10

ROOM 5 HISTORY OF MMS (HIS-3)

Chairmen : Hong-Sen Yan, Jozef Knapczyk

427 Agustin Betancourt and his contribution to higher engineering education in Russia
Olga Egorova (Russia)

603 Historical part of the collection models of TMM's department Bauman Moscow State Technical University
Valentin Tarabarin (Russia), Alexander Golovin, Zinaida Tarabarina

309 Water Machines In Central European Ore-Mines Within !6th and !(th Centuries
Stefan Havlik (Slovak Academy of Sciences, Slovakia)

580 Historic Mechanism Teaching Models in Taiwan
Hong-Sen Yan (National Cheng Kung University, Taiwan), Hsing-Hui Huang (Kun Shan University), Chin-Hsing Kuo (National Cheng Kung University)

36 Development of Drilling Technics from Ancient Ages to Modern Times
Bohdan Kopey (Ukraine)

08:10 – 10:10

ROOM 6 NONLINEAR OSCILLATIONS (NO-2)

Chairmen : Laszlo Kovacs, Ladislav Pust

470 Nonlinear Whirling Motion of Tower-Like Structures Carrying a Liquid Tank
Takashi Ikeda (Japan)

556 Modelling and Stability Analysis of Strings in Axial Motion
Ulrike Zwiers (Universiut Duisburg-Essen, Germany), Manfred Braun

561 Numerical simulation of flow-induced nonlinear vibrations of an airfoil in a channel considering large amplitudes
Petr Svacek (Czech Technical University, Czech Republic), Miloslav Feistauer (Charles University, Czech Republic), Jaromir Horacek (Institute of Thermomechanics, Czech Republic)

889 A modified Taguchi's method applied to parametric and nonlinear primary resonances of gears under parameter uncertainties
Joël Perret-Liaudet (LTDS, ECL, France), Nicolas Driot (LDMS, INSA, Lyon)

776 Case study on the act-and-wait concept for the control of periodic robot motions with feedback delay
Tamas Insperger (Budapest University of Technology and Economics, Hungary), Gabor Stepan

808 Stability and Optimization Aspects of Slightly Damped Oscillatory Systems with Digital Force Control
Laszlo Kovacs (Budapest University of Technology and Economics, Hungary), Gabor Stepan, Jozsef Kovecses (McGill University)

08:30 – 10:10

ROOM 7 ROTOR DYNAMICS (RD-3)

Chairmen : Bangchun Wen, Arend Schwab

913 Exact Balancing of Long Elastic Rotors by Mass Dispensing Robot
Erno Keskinen (Tampere University of Technology, Finland), Michel Cotsaftis (Ecole Centrale d'Electronique)

102 Stochastic Rotor Dynamics
Mikhail Dimentberg (Worcester Polytechnic Institute, U.S.A.)

695 Stability of periodic motion on two-span rotor-bearing system with coupling faults of pedestal looseness and crack
Yuegang Luo (Research Institute of Mechanism Electron and Control Engineering, China), Zhaohui Ren (School of Mechanical Engineering and Automation, China), Naihui Song, Bangchun Wen

167 Feedback Linearization Rub Control using an Active Auxiliary Bearing
Lucas Ginzinger (Technical University, Germany), Heinz Ulbrich

180 Test Rig for a Supercritical Rotor of an Aero Engine
Daniel Peters (Darmstadt University of Technology, Germany), Christian Kaletsch, Rainer Nordmann, Bernd Domes (Rolls-Royce Deutschland)

June 21, Thursday – 10:30-12:10

ROOM 1 COMPUTATIONAL KINEMATICS (CK-8)

Chairmen : Andres Keskemethy, Paul Zsombor-Murray

572 Optimal synthesis of function generating spherical and RSSR mechanisms
Ramon Sancibrian (University of Cantabria, Spain), Ana De-Juan, Pablo Garcia, Alfonso Fernandez, Fernando Viadero

401 Singularity elimination of parallel mechanisms by means of redundant actuation
Yanfei Zhang (Shandong University of Technology, China), Jinliang Gong, Feng Gao (Shanghai Jiao Tong University)

331 Application Backpropagation Neural Network to Synthesis of Whole Cycle Motion Generation Mechanism
Jin Xie (Southwest Jiaotong University, P.R. China), Yong Chen

149 Solution of the Random Structure Chain Inverse Kinematic Problem by the Moving Frame Method
Prokhorov Vasiliy (Aleksandrov Branch of Russian New University, Russia)

598 Direct problem of a random structure kinematic chain links positional accuracy
Prokhorov Vasiliy (Aleksandrov Branch of Russian New University, Russia)

ROOM 2 ROBOTICS (RB-11)

Chairmen : Erika Ottaviano, Ashitava Ghosal

565 Hybrid locomotion adaptable mini-robot
Silvia Appendino (Politecnico di Torino, Italy), Walter Franco, Daniela Maffiodo, Giuseppe Quaglia

723 Non-linear control to compensate low velocity friction of a planar parallel robot
Eduardo Castillo-Castaneda (Universidad Autonoma de Queretaro, Mexico), Josefina Fonseca-Reyes, Carlos Lopez-Cajun

557 Synthesis of a 6-RUS Parallel Manipulator Using Its Stationary Configurations
Isidro Zabalza (Public University of Navarre, Spain), Javier Ros

635 Kinematic and dynamic modeling of the 3-RPS parallel manipulator
Ouarda Ibrahim (IRCCyN, France), Wisama Khalil

665 Output Tracking Control of a Three Link Planar Under-actuated Manipulator
Shengping Liu (Beijing University of Aeronautics and Astronautics, P.R. China), Licheng Wu (Tsinghua University), Zhen Lu (Beijing University of Aeronautics and Astronautics)

ROOM 3 MECHATRONICS (ME-7)

Chairmen : Chang Po Chao, Gerhard Bogelsack

654 Mechatronic approach in vehicle suspension system design
Viktor Gavriloski (Faculty of Mechanical Engineering, R. Macedonia), Darko Danev, Koco Angushev

849 Comparison of stability of centralized and decentralized nonlinear control systems for electromagnetic suspension
Nikolay G. Kodochigov (FSUE OKBM, Russia), Vladimir S. Vostokov, Valery S. Gorbunov, Svetlana V. Lebedeva (VGAVT), Igor V. Drumov (FSUE OKBM)

877 Sliding Mode Control of Mechatronic Stiffness
Martin Necas (Czech Technical University, Czech Republic), Michael Valasek

320 Design and Development of Magnetostrictive Actuating Restrictor
Kuang-Yuh Huang (National Taiwan University, Taiwan), Yu-Chun Shiao

38 Multi-objective Genetic algorithm Optimization of a mechatronic System

Badreddine Elkribi (LGM, ENIM, France), Zouhaier Affi, Lotfi Romdhane

ROOM 4 EDUCATION (ED-3)

Chairmen : Pietro Fanghella, Victor Petuya

716 Computer aided mechanics homework system in the Hungarian higher education
Istvan Biro (Hungary), Bela M. Csizmadia, Zoltan Méller

958 Interdisciplinary Integration Of Educational Disciplines Of Theoretical And Applied Mechanics In Technical University
Ivan Abramov (Izhevsk State Technical University, Russia), Yuriy Semin, Alexander Elenskiy

677 Concept, structure and program realization of the Internet textbook on classical mechanics
Elena Ponomaryova (Astrakhan State Technical University, Russia), Tatiana Nevenchannaya (Moscow State Publishing House), Vladimir Pavlovsky (Russia Acad. of Sci.)

895 Adaptation of the subject, Machine Vibration and Noise
Juan Manuel Munoz Guijosa (Universidad Politecnica de Madrid), Laura Reques, Andres Diaz, Pilar Lafont José Luis Munoz, Julio Munoz

ROOM 5 BIOMECHANICS (BIO)

Chairmen : Jean-Noël Pernin, David Daney

237 Modern noninvasive automatically way for definition of mechanical properties of the human skin
Andrey Yatsun (Russia), Boris Lushnikov, Svetlana Yatsun

765 A multi-body head and neck model for low speed rear impact analysis
Selcuk Himmetoglu (Loughborough University, U.K.), Memis Acar, Andy Taylor, Kaddour Bouazza-Marouf

ROOM 5 DESIGN METHODOLOY (DM)

Chairmen : Burkhard Corves, David Daney

174 A genetic-based optimization of a bus structure as a design methodology
Beatriz L. Boada (Carlos III University, Spain), Antonio Gauchia, Maria Jesus L. Boada, Vicente Diaz

324 Proposal of a New Design Methodology including PD and SBD in Minimally Invasive Surgery
Guillaume Thomann (Institue of Technology, France), Jean Caelen

838 Parameter Prediction in Dynamic Analysis using Response Surface Method and Multi-Objective Genetic Algorithms
Roberto Escobar (Vulkan do Brasil Ltda, Brazil), Katia Cavalca (UNICAMP)

ROOM 6 NONLINEAR OSCILLATIONS (NO-3)

Chairmen : Jan Awrejcewicz, Noureddine Bouhaddi

504 Weak excitation of non-linear rotor system with closely spaced resonances
Ladislav Pust (Institute of Thermomechanics, Czech Republic)

137 Non-smooth Periodic Dynamics of a Bush in Tribological Conditions
Jan Awrejcewicz (Technical University, Poland), Yuriy Pyryev

949 A direct formulation of near-identity transformations and normal forms for Nonlinear Systems with External Periodic Excitations
Amit Gabale (Auburn University, U.S.A.), S. C. Sinha

633 Bifurcation in the dynamical system with clearances
Nenad Kranjcevic (University of Zagreb, Croatia), Milenko Stegic, Nikola Vrankovic

ROOM 7 ROTOR DYNAMICS (RD-4)

Chairmen : Nicolo Bachschmid, Mikhail Dimentberg

907 Internal Friction in Rotor-Shaft Connections of Lab-Centrifuges
Jonas Fischer (University Magdeburg, Germany), Jens Strackeljan

685 Dynamic behaviour of a four-poles turbo generator with rotor eccentricity
Paolo Pennacchi (Politecnico di Milano, Italy), Lucia Frosini (Universite di Pavia, Italy)

818 Some results in steam whirl analysis
Nicolo Bachschmid (Politecnico di Milano, Italy), Paolo Pennacchi, Andrea Vania

226 Rotor Dynamic Unbalance Response Correlation Study
Pranabesh De Choudhury (Pran RDA Consulting Inc., U.S.A.)

387 Inverse Model for the Control and the Monitoring of Rotating Machines
Johan Der Hagopian (INSA de Lyon, France), Nadège Levecque, Valder Steffen Jr (UFU, Brazil), Jarir Mahfoud (INSA, Lyon, France)

June 21, Thursday – 09:30-12:00

EXHIBITION HALL POSTER PRESENTATIONS (P2)

DYNAMICS OF MACHINERY (DY-P2)

89 A Control Strategy for the Avoidance of Overturns in Mobile Cranes
Jaroslaw Janusz (University of Bielsko-Biala, Poland), Jacek Klosilski, Ludwik Majewski, Marcin Sidzina

HISTORY OF MMS (HIS-P2)

637 Collection of mechanisms Bauman's University : Scientific schools of professors of L.Reshetova and V. Gavrilenko
Alexander Golovin (Russia), Valentin Tarabarin, Zinaida Tarabarina

HUMAN-MACHINE SYSTEMS (HMS-P2)

336 Study on Activities of Daily Living of Human Body
Jianguo Zhang (Tianjin University, P.R. China) of Science and Technology), Haiyan Song

455 Relationships between reactive capability and psychological state : a case study
Chiara Zocchi (Italy), Alberto Rovetta, Eleano Pessa, Laura Anna Patrizia Viscardi

LINKAGES AND CAMS (LC-P2)

471 Polyhedral linkages synthesized using Cardan Motion along radial axes
Gokhan Kiper (Middle East Technical University, Turkey), Eres Soylemez, Ali Ulas Ozgur Kisisel

MECHATRONICS (ME-P2)

457 Biorobotic system for increasing automotive safety
Chiara Zocchi (Italy), Alessandro Giusti, Alessandro Adami, Francesco Scaramellini, Alberto Rovetta

328 Decomposition of Delta Volume for Machining
Hua Lu (Ecole Polytechnique de Montréal, Canada), Roland Maranzana (Ecole de Technologie Supérieure), Christian Mascle (Ecole Polytechnique de Montreal)

566 The Development of Some Sensorial Equipments which are not Situated on the Mobil Robots Structure

Horia Panaitopol (Politehnica University of Bucharest, Romania), Daniel Bacescu, Daniel Mihai Bacescu, Madalina Stoica

585 Structure Design and Locomotion Analysis of a Novel Robot for Lunar Exploration
Zhiying Wang (University of Astranautics and Aeronautics, P.R. China), Xilun Ding, Alberto Rovetta (Politecnico di Milano, Italy)

447 Small scale stand for testing different control algorithms on assisted brake systems
Valentin Ciupe ("Politehnica" University of Timisoara, Romania), Inocentiu Maniu

881 Development of Miniaturized Testing Machine of Displacement and Pressure
Teruo Asaoka (Tokyo Denki University, Japan), Yukio Saito, Fujio Miyawaki

536 Simulation of defects using independent component analysis
Gonzalez Isabel (Universidad Carlos III, Spain), Sanchez Ismael

MICROMECHANISMS (MM-P2)

734 Tolerance Design and Analysis of A Micro Stage
Jhy-Cherng Tsai (National Chung Hsing University, Taiwan), Mandy Hsiao, Jau-Liang Chen

NONLINEAR OSCILLATIONS (NO-P2)

539 Nonlinear Dynamics and Analysis of a Four-Bar Linkage with Clearance
Zongyu Chang (Engineering College, Ocean University, China)

766 Characterization of the friction of a damper in open loop control
Mikel Zubieta (Mondragon Unibertsitatea, Spain), Harkaitz Urreta (IDEKO Technologie Centre), Maria Jesus Elejabarrieta (Mondragon Unibertsitatea), Mohammed Mounir Bou-Ali

900 An application of elastic wheel/rail bi-contact theory to the hunting of bogie
Traian Mazilu (University Politehnica of Bucharest, Romania)

930 Dynamics of disc sliding without gap along rigid vibrating rod
Alexandre Gouskov (Bauman MSTU, Russia), Evgenia Mialo (Blagonravov, Institute of Engineering Science RAS), Grigory Panovko

705 On the dynamics in the case of neo-Hookean automobiles suspensions
Nicolae-Doru Stanescu (University of Pitesti, Romania), Nicolae Pandrea, Ionel Vieru

RELIABILITY OF MACHINES AND MECHANISMS (RMM-P2)

626 Kinematical synthesis and analysis of IV class linkage with dwell of output link
Vasily Khomchenko (Omsk State Technical University, Russia), Elena Gebel, Evgeny Solonin, Viatcheslav Solomin

700 Computer kinematical synthesis of plain linkages of II and III class with dwell of output link by the given cyclegramm
Vasily Khomchenko (OmGTU Omsk, Russia), Vladimir Khorunzhin (Kemerovo, Russia, KemTIPP), Vladimir Baksheev, Nikolay Skabkin (Omsk, Russia, OmGTU)

404 Hybrid Reliability Models of Mechanical Structure
Yonghua Li (Dalian University of Technology, China), Weidong He (Dalian Jiaotong University, China)

548 Stable Reliability-Based Robust Design of Compressive Bar Under Incomplete Probability Information
X.D. He (Northeastern University, China), Y.M. Zhang, B.C. Wen

693 Reliability Analysis of 100MN Multi Way Die Forging Hydraulic Press's Computer Control System
Zhongwei Liu (Central South University, China), Shaojun Liu, Yucai Zhou, Yi Deng, Yinjian

359 Synthesis of Spherical Four-bar Function Generator by Means of Fourier Method
Jianwei Sun (P.R. China), Jinkui Chu

506 Synthesis of Coupler Curves of Spherical Four-bar Mechanism Through Fast Fourier Transform
Jinkui Chu (P.R. China), Jianwei Sun

ROBOTICS (RB-P2)

530 Trends of space robotics.Design methodologies for a colony of autonomous space robot explorers
Alberto Rovetta (Politecnico di Milano, Italy), Elena C. Paul

558 Underactuated Robot Dyanmic Modelling and Control Based on Embedding Model
XiuJuan Deng (University of Aeronautics and Astronautics, China), Zhen Lu

577 Robot Fuzzy Force Control Based on Genetic Algorithms
Jun Zhou (Beijing University of Aeronautics and Astronautics, China), Xilun Ding, Zhen Lu

507 Stiffness Analysis of 3-RRR Planar Parallel Mechanisms Based on CCT
Shujun Li (Northeastern University, P.R. China), Clément Gosselin (Laval University)

870 Enumeration and Type Synthesis of One-DOF Remote-Center-of-Motion Mechanisms
Xu Pei (Beihang University, China), Jingjun Yu, Shusheng Bi, Guanghua Zong

732 A New Unitary Synthesis Method of Line Generator Mechanisms for Flexible Manufacturing Systems Devices
Stefan Varga ("Politehnica" University of Timisoara, Romania), Corneliu Radulescu

856 Development of an inchworm microrobot with electromagnetic actuator
Olimpiu Tatar (Technical University of Cluj-Napoca, Romania), Vistrian Maties, Dan Mandru

935 Control of constrained spatial three-link flexible manipulators
Sinan Kilicaslan (Gazi University, Turkey), M. Kemal Ozgoren (Middle East Technical University), S. Kemal Ider

ROTOR DYNAMICS (RD-P2)

41 Aeroelastic analysis of advanced active twist rotor blades in hover
Jae-Sang Park (Seoul National University, Korea), Ji-Hwan Kim

617 Pedestal Looseness Fault Analysis of Overhanging Dual-disc Rotor-bearing
Zhaohui Ren (Northeastern University, China), Tao Yu, Hui Ma, Bangchun Wen

878 Study on Gear wearing Using Order Analysis
He Li (Northeastern University, China), Yiming Zhang, Bangchun Wen

775 Modeling, Simulation and Testing of Flexible Rotating System
Vytautas Barzdaitis (Kaunas University of Technology, Lithuania), Marijonas Bogdevicius (Vilnius Gediminas Technical University), Rimantas Didziokas (Klaideda University)

741 Dynamics of a rotor subjected to a base translational motion and an uncertain parametric excitation
Nicolas Driot (INSA de Lyon, France), Claude Henri Lamarque (LGM, ENTPE, Lyon), Alain Berlioz (LGMT, Université P. Sabatier, Toulouse, France)

584 Extraction of combined fault features by time-frequency analysis in rotor systems
Hui Ma (Northeastern University, China), Tao Yu, Xiaopeng Li, Zhaohui Ren, Bangchun Wen

489 Numerical and experimental optimised shunted piezoelectric circuit for turbomachinery blades
Stéphanie Livet (FEMTO-ST, France), Marc Berthillier, Manuel Collet, Jean-Marc Cote

TRANSPORTATION MACHINERY (TM-P2)

704 Analysis for Neural Network Controllers and Passivity-Based Controller on Test System for Aero Hydraulic Pump
Wenjun Meng (Taiyuan University of Science & Technology, P.R. China), Zhanlin Wang (Beijing University of Aeronautics & Astronautics), Lihua Qiu

TRIBOLOGY (TR-P2)

415 The influence of cam profile deviations on tribologic parameters for the cam-follower coupler with flat disc from thermal engine
Constantin Onescu (University of Pitesti, Romania), Jan Cristian Grigore, Nicolae Doru Stanescu