

MMT Symposium

Celebrating 60 years since the journal's foundation

SCIENTIFIC PROGRAM

June 26-28, 2024 | Guimarães, Portugal



Program at a Glance

Tuesday, June 25				
16:00–19:00	PRE-REGISTRATION			

Time	Wednesday, June 26			
08:00	REGISTRATION			
08:30	OPENING CEREMONY – Main Auditorium			
09:00	TECHNICAL SESSIONS I			
	Computational Kinematics Room Erskine Crossley	Gears and Transmissions Room Terry Shoup	Multibody Dynamics Room John Uicker	Mechanism and Machine Design Main Auditorium
10:45	Coffee-Break and Poster Session			
11:15	TECHNICAL SESSIONS II			
	Robots and Manipulators Room Erskine Crossley	Gears and Transmissions Room Terry Shoup	Rotating Machinery Room John Uicker	Mechanism and Machine Design Main Auditorium
13:00	Lunch			
14:00	KEYNOTE LECTURE I – EDWARD HAUG – Main Auditorium			
14:45	TECHNICAL SESSIONS III			
	Robots and Manipulators Room Erskine Crossley	Nonlinear Systems and Vibration Room Terry Shoup	Biomechanics Room John Uicker	Dynamics of Machinery Main Auditorium
16:15	MMT & IFToMM – PAULO FLORES and ANDRÉS KECSKEMÉTHY – Main Auditorium			
16:30	WELCOME RECEPTION – University Garden			

Time	Thursday, June 27			
08:30	REGISTRATION			
09:00	KEYNOTE LECTURE II – FENG GAO – Room Erskine Crossley			
09:45	TECHNICAL SESSIONS IV			
	Control and Mechatronics Room Erskine Crossley	Numerical Methods Room Terry Shoup	Mechanism and Machine Design Room John Uicker	Robots and Manipulators Room Andrés Kecskeméthy
10:45	Coffee-Break and Poster Session			
11:05	TECHNICAL SESSIONS V			
	Multibody Dynamics Room Erskine Crossley	Gears and Transmissions Room Terry Shoup	Mechanism and Machine Design Room John Uicker	Robots and Manipulators Room Andrés Kecskeméthy
12:20	Lunch			
13:30	SYMPOSIUM TOUR			
19:30	BANQUET – Quinta del Rey			

Time	Friday, June 28			
08:30	REGISTRATION			
09:00	TECHNICAL SESSIONS VI			
	Multibody Dynamics Room Erskine Crossley	Gears and Transmissions Room Terry Shoup	Control and Mechatronics Room John Uicker	Nonlinear Systems and Vibration Room Andrés Kecskeméthy
10:45	Coffee-Break and Poster Session			
11:15	TECHNICAL SESSIONS VII			
	Multibody Dynamics Room Erskine Crossley	Mechanism and Machine Design Room Terry Shoup	Gears and Transmissions Room John Uicker	Biomechanics Room Andrés Kecskeméthy
13:00	Lunch			
14:00	TECHNICAL SESSIONS VIII			
	Compliant Mechanisms Room Erskine Crossley	Mechanism and Machine Design Room Terry Shoup	Robots and Manipulators Room John Uicker	Rotating Machinery and Tribology Room Andrés Kecskeméthy
15:35	KEYNOTE LECTURE III – PIER PAOLO VALENTINI – Room Erskine Crossley			
16:15	AWARDS AND CLOSING CEREMONY – Main Hall			

Wednesday, June 26

08:00

REGISTRATION

08:30-09:00

OPENING CEREMONY – Main Auditorium

TECHNICAL SESSIONS I – A

Wednesday, June 26 • 09:00 – 10:45

COMPUTATIONAL KINEMATICS

Room Erskine Crossley

CHAIR **Martin Pfullner**

Time	ID	Presenting Author	Title
09:00	2	Huiping Shen	Topological design and analysis of a new 4-DOF kinematic decoupled 3T1R parallel mechanism Huiping Shen
09:15	21	Raffaele Di Gregorio	Dynamic model of single-DOF spherical mechanisms based on instantaneous pole axes and Eksergian's equation Raffaele Di Gregorio
09:30	25	Basilio Lenzo	Gravity balancing of spatial serial manipulators without auxiliary bodies Basilio Lenzo
09:45	31	Paul Zsombor-Murray	Algebraic Kinematic Geometry with Pictures Paul Zsombor-Murray
10:00	50	Vimallesh Muralidharan	Influence of geometry on the nature of stiffness modulation in antagonistically actuated 1-DoF joints Vimallesh Muralidharan; Christine Chevallereau; Philippe Wenger
10:15	63	Huijuan Feng	Bifurcation design of single loop linkages based on double points of kinematic curves Weihao Wang; Xuesi Ma; Huijuan Feng; Jian S. Dai; Ruirui Zhang
10:30	105	Ziyue Li	A complete approach for error modeling based on failure of geometrical constraint and kinematic error node (KEN) Ziyue Li; Weizhong Guo

TECHNICAL SESSIONS I – B			Wednesday, June 26 - 09:00 – 10:45
GEARS AND TRANSMISSIONS			
Room Terry Shoup			CHAIR Fernando Viadero
Time	ID	Presenting Author	Title
09:00	198	Yi-Cheng Chen	Design and analysis of a novel ZI-type double-enveloping worm drive Yi-Cheng Chen; Jun-Ting Liu
09:15	22	Konstantin Ivanov	Theorem on the definability of motion of a two-movable kinematic chain with a single input Konstantin Ivanov
09:30	26	Miroslav Václavík	Model of a device for reducing the driving torque of mechanisms with a non-constant transmission Jan Bělík; Miroslav Václavík; Jiří Ondrášek
09:45	84	Marina Baldissera de Souza	Efficiency Formulae for Automotive Differential Bevel Gearbox Marina Baldissera de Souza; Gustavo Queiroz Fernandes; Andrea Piga Carboni; Luís Paulo Laus; Daniel Martins
10:00	91	Yuichiro Seo	Eigenvalue analysis of graph Laplacian representing helix deviation network Yuichiro Seo; Daisuke Iba; Daisuke Yamazaki; Jing C. Low; Kunitoshi Kawano
10:15	215	Aurea Iñurritegui Marroquin	Influence of the crowning ratio in spherical gear couplings working in misaligned conditions Aurea Iñurritegui; Jon Larrañaga; Aitor Arana; Ibai Ulacia
10:30	75	Javier Sanchez-Espiga	On the behaviour of n-planets planetary gearsets influenced by geometrical factors Javier Sanchez-Espiga; Marius Fuerst; Alfonso Fernandez-del-Rincon; Michael Otto; Fernando Viadero; Karsten Stahl

TECHNICAL SESSIONS I - C			Wednesday, June 26 - 09:00 – 10:45
MULTIBODY DYNAMICS			
Room John Uicker			CHAIR Pier Paolo Valentini
Time	ID	Presenting Author	Title
09:00	5	Yongjun Pan	Pitch Motion Suppression of Electric Vehicle Active Suspensions Based on Multibody Dynamics Xiangping Wu; Yongjun Pan; Gengxiang Wang; Liang Hou
09:15	54	Manuel Alcázar Vargas	Non-Ideal Joints and Friction: A Study on Motorcycle Front Suspension Dynamics Manuel Alcázar Vargas; Javier Perez Fernandez; Agustin Escalera Zamudio; Juan Antonio Cabrera Carrillo; Juan Jesus Castillo Aguilar
09:30	83	Luciano Cianciotta	Investigation on engagement dynamics of parklock mechanism using a multibody approach Luciano Cianciotta; Enrico Segalini; Pier Paolo Valentini
09:45	95	Karol Zielonka	Use of extended mechanical energy balance of vehicles' collision to determine pre-impact velocity in accident reconstruction Leon Prochowski; Mateusz Ziubiński; Mirosław Gidlewski; Karol Zielonka
10:00	128	Alejandro Bustos	Effect of the secondary suspension on the performance of a high-speed train Alejandro Bustos; Higinio Rubio; Cristina Castejon; Juan Carlos Garcia-Prada
10:15	232	Jorge Ambrósio	Digital twin for the condition monitoring of railway bogies based on multibody dynamics tools Jorge Ambrósio; João Pagaimo; Pedro Millan; Joao Costa
10:30	219	Alessandro Cammarata	A non-local interface impact model for planar flexible mechanisms with revolute joints Alessandro Cammarata; Pietro Davide Maddio; Rosario Sinatra

TECHNICAL SESSIONS I - D			Wednesday, June 26 - 09:00 – 10:45
MECHANISM AND MACHINE DESIGN			
Main Auditorium			CHAIR Ashitava Ghosal
Time	ID	Presenting Author	Title
09:00	183	David Herrmann	Theoretical considerations on 2D multistable tensegrity structures based on equilateral triangles David Herrmann; Leon Schaeffer; Valter Böhm
09:15	229	Michael Valasek	The death and birth of mechanisms on examples of PKM at CTU Michael Valasek
09:30	93	Ketao Zhang	Modelling of a variable-stiffness rotary joint with soft-rigid hybrid actuators Zhujin Jiang; Ketao Zhang
09:45	119	Yu-Ren Wu	Uniform-design-based Optimization for Screw Rotor Profiles Generated by the Sealing Line Van-Quyet Tran; Yu-Ren Wu
10:00	130	Chaoyang Song	The Design and Learning of Overconstrained Mechanisms towards Overconstrained Robotics Chaoyang Song
10:15	174	Vinicius Noal Artmann	Direct four-bar function generator synthesis for four precision positions by means of complex numbers Vinicius Noal Artmann; Saint Clair Trisotto; Leonardo Mejia; Daniel Martins
10:30	53	Sonja Jozic	Application of metal foams obtained by recycling aluminum chips to cork industry wastewater treatment Sonja Jozic; Ana Sofia Fajardo; João Silva; Branimir Lela; Dražen Bajić; Luis M Castro; Cândida Malça
10:45 – 11:15		Coffee-Break and Poster Session	

TECHNICAL SESSIONS II – A			Wednesday, June 26 - 11:15 – 13:00
ROBOTS AND MANIPULATORS			
Room Erskine Crossley			CHAIR Basilio Lenzo
Time	ID	Presenting Author	Title
11:15	48	Kuan Zhang	An adaptable, intelligent, and robust inner wall gripper for tube-sheet crawling robot Kuan Zhang; Jizhuang Fan; Tian Xu; Zhenming Xing; Jinghan Lin; Biying Xu; Jie Zhao
11:30	56	Dan Shachaf	Wave robot locomotion in circular canals: modeling and experimentation Dan Shachaf; Lee-Hee Drory; David Zarrouk
11:45	57	Alexandr Klimchik	Stiffness modelling for robotic manipulators with cross-linkages using virtual joint modelling method Alexandr Klimchik; Anatol Pashkevich
12:00	171	Adrián Peidró	Motion analysis of a tree-climbing robot Paula Mollá-Santamaría; Adrián Peidró; Marc Fabregat-Jaén; Luis M. Jiménez; Óscar Reinoso
12:15	99	Nadia Ramona Cretescu	End-effector trajectory dynamic errors and optimal design of a Delta parallel robot with flexible links and joint clearances Nadia Ramona Cretescu; Mircea Neagoe
12:30	47	Sajjad Keshtkar	Novel Airborne Configuration for Gas Mapping in Open Areas Juan Gabino Díaz Martínez; Irandi Gutierrez; Sajjad Keshtkar; Hirohisa Kojima; Finbar Maunsell
12:45	149	Zhumadil Baigunchekov	Geometry, kinematics and workspace of the novel 3-PRRS type tripod Zhumadil Baigunchekov; Giuseppe Carbone; Med Amine Laribi; Wang Xuelin; Li Qian; Rustem Kaiyrov; Zhadyra Zhumasheva

TECHNICAL SESSIONS II - B			Wednesday, June 26 - 11:15 - 13:00
GEARS AND TRANSMISSIONS			
Room Terry Shoup			CHAIR Carlos Fernandes
Time	ID	Presenting Author	Title
11:15	36	Yaping Zhao	Meshing theory of face worm gear drive with torus enveloping cylindrical worm Yaping Zhao
11:30	65	Stephane Portron	A model to study the effect of micropitting on the dynamic behaviour of a geared system Stephane Portron
11:45	68	Thijs Van der Veken	Kalman filter-driven gear mesh stiffness estimation Thijs Van der Veken; Jordi Jordan Marco; Bart Blockmans; Matteo Kirchner; Jan Croes; Frank Naets
12:00	134	Matteo Autiero	Exploring the effect of gear Macro-geometric parameters on the optimization of Micro-geometry Matteo Autiero; Luca D'Angelo; Giovanni Paoli; Marco Cirelli; Pier Paolo Valentini
12:15	111	Rodrigo Metzger da Silva	Machine learning algorithms for gear contact fatigue detection Rodrigo Metzger da Silva; Ronnie Rego; Robert Frazer; Brian Shaw
12:30	129	Maksat Temirkhan	Enhancing Performance of Cycloidal Gear Drives: A Novel Tooth Contact Analysis Method with Pin Surface Modification for Improved Misalignment Tolerance Maksat Temirkhan; Christos Spitas; Andas Amrin

TECHNICAL SESSIONS II – C			Wednesday, June 26 - 11:15 – 13:00
ROTATING MACHINERY			
Room John Uicker			CHAIR Ibai Ulacia
Time	ID	Presenting Author	Title
11:15	39	Arthur Mereles	Center manifold reduction applied to rotors with fluid bearings subjected to unbalance Arthur Mereles; Diogo Stuani Alves; Katia Lucchesi Cavalca
11:30	59	Martin Eizmendi	Hysteretical damping model for experimental correlation of the axial dynamic response in four-point contact slewing bearings Martin Eizmendi; Josu Aguirrebeitia; Iker Heras; Mikel Abasolo
11:45	125	Iman Sabahi	Framework for estimation of lumped bearing loads using accurate housing models Iman Sabahi; Martijn Vermaut; Matteo Kirchner; Zhen Li; Konstantinos Gryllias; Frank Naets
12:00	8	Mattia Battarra	Design potentials of elliptical vane tips in balanced vane pumps Mattia Battarra; Caterina Natali; Emiliano Mucchi; Giorgio Dalpiaz
12:15	209	Pello Alberdi Quevedo	Redefining Ball Screw Kinematics: Exposing the Limitations of Traditional Formulations for Orbital and Angular Speed Pello Alberdi; Aitor Arana; Aitor Oyanguren; Jon Larrañaga; Ibai Ulacia
12:30	206	José Antonio Hernandez-Torres	Highly efficient failure frequency detection on rotating machinery, analysis and discrimination through neuronal approximations Javier Castilla-Gutierrez; Jose Antonio Hernandez-Torres; Juan Carlos Fortes; José Miguel Dávila

TECHNICAL SESSIONS II - D			Wednesday, June 26 - 11:15 - 13:00
MECHANISM AND MACHINE DESIGN			
Main Auditorium			CHAIR Philippe Wenger
Time	ID	Presenting Author	Title
11:15	197	Alejandro Arreola	Novel Adjustable Landing Gear for Uneven Terrains Alejandro Arreola; Eusebio Hernandez; Sajjad Keshtkar; Hirohisa Kojima; Crescensio Garcia
11:30	163	Ashitava Ghosal	Design of pointing mechanism for satellite-based optical communication Sachin Barthwal; Ashitava Ghosal
11:45	77	Álvaro Noriega	A simple and efficient way to introduce bounded ranges in parameters and functional constraints in a dimensional synthesis problem Álvaro Noriega; Igor Fernández de Bustos; Vanessa García-Marina
12:00	32	Juan A. Cabrera	Design of mandibular advancement devices using an evolutionary algorithm Juan A. Cabrera; Alex Bataller; Javier Perez; Manuel Alcazar
12:15	62	Marko Lubarda	Analysis of a linear motion slider with two point contacts under variable loading Marko Lubarda; Nina Abraham; Surejkrishna Melattinkara Sunil; Joseph Lee
12:30	103	Jiaji Ma	A compact spherical-gear wrist mechanism with comparable movement to human wrists Jiaji Ma; Caihua Xiong; Dai Chu; Baiyang Sun
12:45	24	Kanan Azimov	Structural and constructive synthesis of hexagonal Euclidean parallel robot manipulator of spacecraft docking system Rasim Alizade; Kanan Azimov; Javad Samadzade
13:00 - 14:00	Lunch		

KEYNOTE LECTURE I			Wednesday, June 26 - 14:00 - 14:40
Main Auditorium			CHAIR Jorge Ambrósio
Time	ID	Presenting Author	Title
14:00	7	Edward Haug	Kinematics and dynamics of redundant robotic manipulators; an accurate differential geometric formulation Edward Haug

TECHNICAL SESSIONS III – A			Wednesday, June 26 - 14:45 – 16:15
ROBOTS AND MANIPULATORS			
Room Erskine Crossley			CHAIR Xianwen Kong
Time	ID	Presenting Author	Title
14:45	196	Zijian Ma	A model-based cutting stability prediction method for parallel machining robots Zijian Ma; Fugui Xie; Xin-Jun Liu
15:00	76	Soumya Kanti Mahapatra	Using neural networks for the kinematics of closed loop mechanisms and serial robots Soumya Kanti Mahapatra; Naveen Kumar Maddu; Ashitava Ghosal
15:15	114	Isaac John	Stiffness profile investigation of a variant of the 2-US-1-UU mechanism, with offsets at the proximal U joints Isaac John; Santhakumar Mohan; Philippe Wenger
15:30	208	Eldho Paul	Sensitivity Driven Kinematic Calibration of an Industrial Robot Benny Paul I; Riby Abraham Bobby; Eldho Paul; K Hariharan
15:45	180	Xiao Li	Singularity analysis of a multiple-loop kinematically redundant parallel mechanism based on Grassmann line geometry Xiao Li; Haibo Qu; Yili Kuang; Giuseppe Carbone; Sheng Guo
16:00	131	Bogdan Gherman	Higher order kinematics for an innovative surgical parallel robot Bogdan Gherman; Calin Vaida; Iosif Birlescu; Daniel Condurache; Pislă Doina

TECHNICAL SESSIONS III – B			Wednesday, June 26 - 14:45 – 16:15
NONLINEAR SYSTEMS AND VIBRATION			
Room Terry Shoup			CHAIR Andrzej Urbaś
Time	ID	Presenting Author	Title
14:45	150	Ociel Flores-Díaz	The logistic function for predicting vibration frequency in low-power wind turbine blades Ociel Flores-Díaz; Jesús O. Martínez-Cabañas
15:00	86	Marco Carricato	Eliminating Vibrations in Nonlinear Systems with Input Shaping: a Novel Approach Andrea Lucarini; Michele Angelini; Edoardo Idà; Marco Carricato
15:15	207	Xinxin Yu	Comparisons between moving mode and beam models for modelling wheel-rail impact at a singular rail surface defect Xinxin Yu; Chen Shen; Jose Escalona; Aki Mikkola; Zili Li
15:30	214	Sanjin Braut	Transient vibration analysis and fatigue assessment of the ship propulsion shaft FE model Sanjin Braut; Alen Marijančević; Roberto Žigulić; Goranka Štimac Rončević
15:45	71	Maksymilian Bednarek	Properties of the electromagnetic softening and hardening spring: experiment and simulation Maksymilian Bednarek; Jan Awrejcewicz

TECHNICAL SESSIONS III – C			Wednesday, June 26 - 14:45 – 16:15
BIOMECHANICS			
Room John Uicker			CHAIR Miguel Tavares da Silva
Time	ID	Presenting Author	Title
14:45	96	Francisco Geu Flores	Using RFID tags for lower-limb clinical gait assessment: Concept, virtual simulation, and prototype validation Francisco Geu Flores; Katharina Müller; Andrés Kecskeméthy
15:00	166	Nicola Sancisi	A two-DOF parallel mechanism to model the ankle complex Nicola Sancisi; Raphael Dumas; Vincenzo Parenti-Castelli; Michele Conconi
15:15	1	Mariana Rodrigues da Silva	Modeling and analysis of the ankle joint complex with muscles Mariana Rodrigues da Silva; Maria Francisca Sousa; Filipe Marques; Sérgio B. Gonçalves; Miguel Tavares da Silva; Paulo Flores
15:30	230	Sérgio B. Gonçalves	On the Modeling of Musculotendon Units with Fully Cartesian Coordinates and a Generic Rigid Body Sérgio B. Gonçalves; Paulo Flores; Miguel Tavares da Silva
15:45	225	Gonçalo Marta	Kinematic and kinetic differences between two running shoes at 3 selected running speeds Gonçalo Marta; Carlos Quental; Pedro Fonseca; Francisco Guerra-Pinto; João Vilas-Boas; João Folgado
16:00	167	Raphael Dumas	Parallel mechanisms for the TLEM2 musculoskeletal model Raphael Dumas; Michele Conconi; Nicola Sancisi

TECHNICAL SESSIONS III – D			Wednesday, June 26 • 14:45 – 16:15
DYNAMICS OF MACHINERY			
Main Auditorium			CHAIR Mircea Neagoe
Time	ID	Presenting Author	Title
14:45	43	Karl Scholl	Efficient and Robust Control for Active Magnetic Bearings of an Outer-rotor Flywheel for a Broad Speed Range Karl Scholl; Stephan Rinderknecht
15:00	81	Elias Rechreche	Experimental and numerical analyses of grid couplings in quasi-static and dynamic conditions Elias Rechreche; Philippe Velez; Jérôme Bruyère; Quentin Le Guennec
15:15	38	Zharilkassin Iskakov	Dynamic modeling of the mixing device when the drive link moves in a rotational mode Zharilkassin Iskakov; Kuantbay Bissembayev; Assylbek Jomartov
15:30	69	Montserrat Simarro	Dynamic characterization of pantograph and validation of simplified mathematical models Montserrat Simarro; Pedro Reyes; Rafael Jesus Luque; Antonio Gerra; Juan J. Castillo; Sergio Postigo
15:45	205	José Antonio Hernandez-Torres	Analysis of turbine morphology for tidal low-speed flow energy extraction José Antonio Hernandez-Torres; Reyes Sanchez-Herrera; Juan P. Torreglosa; Jesus Clavijo-Camacho; Ángel Mena-Nieto
16:00	15	Binbin Peng	A novel multi-link high speed precision punching machine mechanism and its dynamic balance design Binbin Peng; Aoning Ren; Hongzhen Liu

MAIN AUDITORIUM	Wednesday, June 26 • 16:15 – 16:30
Paulo Flores and Andrés Kecskeméthy	MMT & IFToMM: A road from 1960s until yesterday

16:30 – 17:30	WELCOME RECEPTION – University Garden
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Thursday, June 27

08:30

REGISTRATION

KEYNOTE LECTURE II

Thursday, June 27 - 09:00 – 09:40

Room Erskine Crossley

CHAIR **Andrés Kecskeméthy**

Time	ID	Presenting Author	Title
09:00	179	Feng Gao	Beijing Winter Olympics journey of the Curling and Skiing Robots Feng Gao

TECHNICAL SESSIONS IV – A

Thursday, June 27 - 09:45 – 10:45

CONTROL AND MECHATRONICS

Room Erskine Crossley

CHAIR **Benjamin Boudon**

Time	ID	Presenting Author	Title
09:45	6	Hossein Habibi	Wave-based control of vibration in an active suspension system with a quarter-car model Hossein Habibi
10:00	78	Fernando Viadero-Monasterio	Robust semi-active suspension control using magnetorheological dampers Fernando Viadero-Monasterio, Miguel Meléndez-Useros, Manuel Jiménez-Salas, Beatriz Lopez Boada and María Jesús L. Boada
10:15	210	Jason Bettega	Path following and tension distribution on overactuated cable suspended parallel robots through nonlinear model predictive control with exponential cost function Jason Bettega, Dario Richiede; Alberto Trevisani
10:30	55	Hyunjun Bae	Analysis of model accuracy impact on model-based control performances under high dynamic conditions: mechatronic approach and experimental validation on the dextar robot Hyunjun Bae; Benjamin Boudon; Thu Thuy Dang; Belhassen Chedli Bouzgarrou; Quang Hoang Nguyen

TECHNICAL SESSIONS IV – B			Thursday, June 27 • 09:45 – 10:45
NUMERICAL METHODS			
Room Terry Shoup			CHAIR Iker Heras
Time	ID	Presenting Author	Title
09:45	41	Domenico Mundo	Performance and accuracy analysis of higher-order Finite Element formulations for dynamic digital twins Anna Karpik; Francesco Cosco; Domenico Mundo
10:00	181	Jon Larrañaga	Efficient multiblock approach for automated and refined 3D hexahedral mesh generation: applied to machine elements Jon Larrañaga; Aurea Iñurritegui; Aitor Arana; Aitor Oyanguren; Ibai Ulacia
10:15	73	Jaroslav Cibulka	NURBS teaching methods focused on practical applications Ivana Linkeová; Marta Hlavová; Jaroslav Cibulka
10:30	115	Carlos Rodriguez-Donate	A new methodology for improving kinematic profiles using oversampling, fir filter, and decimation Carlos Rodriguez-Donate; Jacob Gonzalez-Villagomez; Esau Gonzalez-Villagomez; Ruth Ivonne Mata-Chavez; Omar Palillero-Sandoval

TECHNICAL SESSIONS IV – C			Thursday, June 27 • 09:45 – 10:45
MECHANISM AND MACHINE DESIGN			
Room John Uicker			CHAIR Bogdan Gherman
Time	ID	Presenting Author	Title
09:45	156	Siyuan Ye	Nonlinear modelling of a novel general single-translation constraint and centre drift analysis of the resulting spherical joint Jiaxiang Zhu; Guangbo Hao; Siyuan Ye
10:00	212	David Herrmann	Illuminating the morphological diversity of 2D tensegrity grids John Rieffel; David Herrmann; Lukas Lehmann; Leon Schaeffer; Valter Böhm
10:15	164	Qianqian Zhang	Design of a polygonal mobile mechanism with cam mechanism based on dynamic rolling Qianqian Zhang; Yezhuo Li; Shaoze Yan; Yan-An Yao
10:30	104	Sajjad Keshtkar	Experimental Study of Novel Reaction Wheel Systems with Variable Moment of Inertia Sajjad Keshtkar; Rintaro Itakura; Hirohisa Kojima

TECHNICAL SESSIONS IV – D			Thursday, June 27 • 09:45 – 10:45
ROBOTS AND MANIPULATORS			
Room Andrés Kecskeméthy			CHAIR Daniel Condurache
Time	ID	Presenting Author	Title
09:45	135	Zhi Wang	A 2-DOF remote center-of-motion mechanism based on zipper-inspired compact arc joint Zhi Wang; Yixin Shao; Fei Liu; Shengnan Lyu; Xilun Ding; Wuxiang Zhang
10:00	20	Philippe Wenger	A new class of planar 3-DOF cable-driven parallel robots with decoupled workspace Philippe Wenger; Christine Chevallereau; Stéphane Caro
10:15	102	Avi Cohen	Minimally Actuated Serial Robot – Design and Kinematics Avi Cohen; David Zarrouk
10:30	195	Eldho Paul	Stiffness modeling and calibration of coordinated robots: Application to incremental forming Eldho Paul; Alexandr Klimchik; Hariharan Krishnaswamy; Riby Abraham Bobby; Sahil Bharti
10:45 – 11:05		Coffee-Break and Poster Session	

TECHNICAL SESSIONS V – A			Thursday, June 27 • 11:05 – 12:20
MULTIBODY DYNAMICS			
Room Erskine Crossley			CHAIR Eduardo Corral
Time	ID	Presenting Author	Title
11:05	161	Antonio J. Rodríguez	Development of Kalman Filter Approaches for the Monitoring of Mechanical Clearances Antonio J. Rodríguez; Emilio Sanjurjo; Mario Cabello; Mario López-Lombardero; Pablo Díaz; Francisco González; Miguel Ángel Naya
11:20	170	José Ferreira	Real-time simulation of multibody systems with hydraulic actuators José Ferreira; Filipe Marques; Paulo Flores
11:35	176	Pablo Riera	Ball bearing multibody simulations with ball contact damping Pablo Riera; Luis Maria Macareno; Josu Aguirrebeitia; Igor Fernandez de Bustos
11:50	193	Raúl Gismeros Moreno	A General Formulation of the Contact Interaction Between a Circle Surface and a Convex-Concave-Convex Surface Raúl Gismeros Moreno; Filipe Marques; Eduardo Corral Abad; María Jesús Gómez García; Jesús Meneses Alonso; Paulo Flores
12:05	118	Orazio Sorgonà	Functional design of compliant multibody systems Orazio Sorgonà; Matteo Verotti; Oliviero Giannini

TECHNICAL SESSIONS V - B			Thursday, June 27 • 11:05 – 12:20
GEARS AND TRANSMISSIONS			
Room Terry Shoup			CHAIR Alessio Artoni
Time	ID	Presenting Author	Title
11:05	58	Fernando Viadero	Simulation and validation of the transmission error, meshing stiffness, and load sharing of planetary spur gear transmissions Jose Pedrero; Javier Sánchez-Espiga; Miryam Sánchez; Miguel Pleguezuelos; Alfonso Fernández-del-Rincón; Fernando Viadero
11:20	143	Carlos Fernandes	A semi-analytical thermal model for polymer gears João Marafona; Jorge Seabra; Pedro Marques; Pedro Romio; Stephane Portron; Carlos Fernandes
11:35	17	Mircea Neagoe	Dynamic Modeling and Simulation of a Counter-rotating Wind System with Reconfigurable Monomobile Planetary Speed Increaser Mircea Neagoe; Saulescu Radu
11:50	74	Pedro Marques	Crowned helical gears for constant mesh stiffness Pedro Marques
12:05	42	Domenico Mundo	Performance study of spiral bevel gears under misaligned conditions for different load levels using a 3D gear contact force model Sebastiano Parrinello; Mathijs Vivet; Rocco Adduci; Francesco Cosco; Domenico Mundo

TECHNICAL SESSIONS V - C			Thursday, June 27 • 11:05 – 12:20
MECHANISM AND MACHINE DESIGN			
Room John Uicker			CHAIR Marco Carricato
Time	ID	Presenting Author	Title
11:05	79	Huijuan Feng	A novel metamorphic mechanism with multi-motion branches Xi Kang; Qia Lin; Huijuan Feng; Bing Li
11:20	97	Yuanqing Gu	Overconstraint reduction for three- symmetric Bricard assembly Yuanqing Gu; Xiao Zhang; Yan Chen
11:35	90	Xianwen Kong	Single-DOF multi-mode mechanisms constructed by plane-symmetric four-bar spherical linkage and orthogonal Bricard linkage Jieyu Wang; Weiwei Hu; Yingzhong Tian; Yinjun Zhao; Xianwen Kong
11:50	116	Enrique Pujada Gamarra	Displacements analysis of the double-hinge technique for origami thickness accommodation Enrique Pujada Gamarra; Lena Zentner; Daniel Lavayen Farfan; Jorge Antonio Rodriguez Hernandez

TECHNICAL SESSIONS V – D			Thursday, June 27 - 11:05 – 12:20
ROBOTS AND MANIPULATORS			
Room Andrés Kecskeméthy			CHAIR Damien Chablat
Time	ID	Presenting Author	Title
11:05	190	Zhenming Xing	A tendon-driven wheeled gripper capable of flexible movement outside variable-diameter pipelines Zhenming Xing; Jizhuang Fan; Tian Xu; Ke Yao; Kuan Zhang; Jie Zhao
11:20	202	Anya Forestell	Physics-Motivated Reinforcement Learning for Robotic Contact Interactions Anya Forestell; Siamak Arbatani; Chen Chen; Charles Sirois; József Kövecses
11:35	35	Jialiang Sun	Optimization design and dynamics of cable-driven flexible robotics Jialiang Sun
11:50	217	Brandon-Daniel Salazar-Bravo	Gait Planning for Humanoid Robots Optimizing the Stability Margin by Applying Genetic Algorithms Brandon-Daniel Salazar-Bravo; J. Alfonso Pamanes; Jesus-Eduardo Fierro-Proa
12:05	201	Eldho Paul	Calibration of Coordinated Industrial Robots Riby Abraham Bobby; Eldho Paul; K Hariharan
12:20 – 13:30		Lunch	
13:30 – 19:30		SYMPOSIUM TOUR	
19:30 – 22:30		BANQUET – Quinta del Rey	

Friday, June 28

08:30

REGISTRATION

TECHNICAL SESSIONS VI - A

Friday, June 28 - 09:00 - 10:45

MULTIBODY DYNAMICS

Room Erskine Crossley

CHAIR **Daniel García-Vallejo**

Time	ID	Presenting Author	Title
09:00	72	Jorge González Navarro	Comparative Analysis of Friction Force Models in Multibody Systems Jorge González Navarro; Raúl Gismeros Moreno; Eduardo Corral Abad; Cristina Castejon
09:15	11	Tomasz Piatkowski	Model and analysis of the objects' positioning process by system of rectilinear barrier and oblique friction force field Tomasz Piatkowski
09:30	108	Jia Ma	A Novel Continuous Contact Force Model Based On Variable Restitution Coefficient Model Menghao Bai; Jia Ma; Can Luo; Jing Peng
09:45	153	Gengxiang Wang	Analysis of nonphysical attraction force from the nonlinear viscoelastic contact model in the cohesionless granular system Gengxiang Wang; Wanxun Jia; Fuan Cheng; Yongjun Pan
10:00	165	Simone Serafino	Mode Based Multibody Modelling of Spur Gear Dynamics Simone Serafino; Luca Bruzzone; Matteo Verotti; Pietro Fanghella
10:15	106	Roberto Guida	Introducing a novel multibody model for harmonic drives with individual teeth dynamics Roberto Guida; Antonio Carlo Bertolino; Andrea De Martin; Andrea Raviola; Massimo Sorli
10:30	168	Pedro Millan	Dynamics of road vehicles with structures made of new materials and structural joints Pedro Millan; Jorge Ambrósio

TECHNICAL SESSIONS VI – B			Friday, June 28 • 09:00 – 10:45
COMPUTATIONAL KINEMATICS			
Room Terry Shoup			CHAIR Raffaele Di Gregorio
Time	ID	Presenting Author	Title
09:00	169	Gustavo Queiroz Fernandes	Grasping capability analyses for optimal grasp synthesis Gustavo Queiroz Fernandes; Marina Baldissera de Souza; Leonardo Mejia Rincon; Daniel Martins
09:15	140	Ravi Tripathi	Motion space analysis of smooth objects in circular curved contact Ravi Tripathi; Rama Krishna K
09:30	142	Fei Liu	Harvesting bistable energy to release dynamic performance in metamorphic mechanisms for automated fibre placement heads Fei Liu; Shenru Wang; Junfan Shang; Zhen Sun; Zhi Wang; Yixin Shao; Wuxiang Zhang; Xilun Ding
09:45	172	Alexis Boulay	Ruling guidance an adaptative and dynamic haptic guide model Alexis Boulay; David Daney; Margot Vulliez
10:00	159	Fernando Vinicius Morlin	Determining the connectivity matrix using matroid theory Fernando Vinicius Morlin; Andrea Piga Carboni; Daniel Martins
10:15	151	Giorgio Figliolini	Kinematic analysis of a higher-pair mechanism for the generation of involute tooth profiles Giorgio Figliolini; Hellmuth Stachel; Jorge Angeles
10:30	141	Zhao Tang	Computation of Kinematic Paths and Bifurcation Points for Multi-Degree-Of-Freedom Mechanisms with Singular Value Decomposition Zhao Tang; Huijuan Feng; Jian S. Dai

TECHNICAL SESSIONS VI – C			Friday, June 28 • 09:00 – 10:45
CONTROL AND MECHATRONICS			
Room John Uicker			CHAIR Hossein Habibi
Time	ID	Presenting Author	Title
09:00	145	Manuel Jiménez-Salas	Combined lateral and longitudinal energy efficient MPC control for vehicle path tracking Manuel Jiménez-Salas; Basilio Lenzo; Miguel Meléndez-Useros; Fernando Viadero-Monasterio; María Jesús López-Boada; Beatriz López-Boada
09:15	175	Ahmed-Manaf Dahmani	Parametric Trajectories and Measurement Error in Inverse Optimal Control Ahmed-Manaf Dahmani; David Daney; François Charpillet
09:30	107	Krzysztof Jankowski	Synthesis and simulation tests of the control algorithm of the car steering system during a sudden change of the lane Dariusz Żardecki; Mirosław Gidlewski; Krzysztof Jankowski; Leszek Jemiot; Karol Zielonka
09:45	160	Pedro Neto	Robust Learning Interaction Control of Serially-Linked Robotic Manipulators in Unknown Environments Reza Nazmara; Pedro Neto; A. Pedro Aguiar
10:00	189	Bálint Bodor	Iterative approaches for the control of underactuated mechanical systems Bálint Bodor
10:15	100	Alexandre Lê	Certified Kinematic Tools for the Design and Control of Parallel Robots Alexandre Lê; Fabrice Rouillier; Guillaume Rance; Damien Chablat
10:30	80	Miguel Meléndez-Useros	Robust Active Suspension Control Tolerant to Sensor Faults Miguel Meléndez-Useros, Manuel Jiménez-Salas, Fernando Viadero-Monasterio, Beatriz López Boada and María Jesús López Boada

TECHNICAL SESSIONS VI - D			Friday, June 28 - 09:00 - 10:45
NONLINEAR SYSTEMS AND VIBRATION			
Room Andrés Kecskeméthy			CHAIR Shane Johnson
Time	ID	Presenting Author	Title
09:00	155	Alfonso García-Agúndez Blanco	Gyroscopic stability of the hoop-rod system with nonholonomic constraints Alfonso García-Agúndez Blanco; Daniel García Vallejo; Emilio Freire Macías
09:15	227	Devavrit Maharshi	Higher Order Modal analysis of an axially loaded conical disk-shaft system under large deformation Devavrit Maharshi; Barun Pratiher
09:30	194	Davide Grillo	An experimental setup to characterize the influence of a tensile preload on the vibrational behaviour of a viscoelastic beam Elena Pierro; Davide Grillo; Giuseppe Carbone
09:45	112	Damian Gąska	Comparison of different bluff-body shapes for a flag configuration energy harvesting system Damian Gąska; Jerzy Margielewicz; Sławomir Bucki; Grzegorz Litak
10:00	120	Cui Chao	Parameter identification of nonlinear frictional systems using SINDy-PI Cui Chao; David T. Branson; Jian Yang
10:15	186	Nitin Gupta	Experimental investigation of endpoint vibration under fluid medium of moving base flexible robotic manipulator Nitin Gupta; Barun Pratiher
10:30	224	Mayank Ahirwar	Size-dependent Dynamics of micro rotating system based on modified couple stress theory Mayank Ahirwar; Barun Pratiher
10:45 - 11:15	Coffee-Break and Poster Session		

TECHNICAL SESSIONS VII - A			Friday, June 28 • 11:15 – 13:00
MULTIBODY DYNAMICS			
Room Erskine Crossley			CHAIR Alessandro Cammarata
Time	ID	Presenting Author	Title
11:15	154	Igor Fernández de Bustos	On the use of an alternative null space formulation for the resolution of multibody simulation problems Igor Fernández de Bustos; Alvaro Noriega; Haritz Uriarte; Gorka Urkullu
11:30	137	Daniel Condurache	An overview of higher-order kinematics of rigid body and multibody systems with nilpotent algebra Daniel Condurache
11:45	177	Márton Kuslits	Velocity Projection of State Transition Matrices in Extended Kalman Filters of Multibody Systems Márton Kuslits
12:00	218	João Pagaimo	A floating frame of reference approach to study fracture in multibody systems using peridynamics João Pagaimo; Francisco Vieira; Aurélio Araújo; Jorge Ambrósio
12:15	33	Andrzej Urbaś	Applications of an eccentric crank-slider mechanism metamodels to examine their dynamics Andrzej Urbaś; Jacek Stadnicki
12:30	231	Miguel Tavares da Silva	On the use of Mixed Coordinates for the Simultaneous Determination of Joint Angles and Kinematically Consistent Positions Sérgio B. Gonçalves; Paulo Flores; Miguel Tavares da Silva
12:45	211	Anyá Forestell	Alternative Formulation for Modelling Rigid Bodies in Unilateral Interaction Problems David M. Solanillas Francés; József Kövecses

TECHNICAL SESSIONS VII - B			Friday, June 28 • 11:15 – 13:00
MECHANISM AND MACHINE DESIGN			
Room Terry Shoup			CHAIR Huijuan Feng
Time	ID	Presenting Author	Title
11:15	10	Yu-Xin Wang	A clustering-based generative functional synthesis for realizing ingenious combination of mechanisms Yu-Xin Wang; Yu-Tong Li
11:30	3	Mathias Wallin	Optimization and experimental verification of buckling-induced deployable structures Mathias Wallin; Hoo Min Lee; Gil Ho Yoon; Jonas Engqvist; Matti Ristinmaa
11:45	19	Dongtian Wu	Design and analysis of a missile-borne low-disturbance deployable mechanism Dongtian Wu; Hui Yang; Yan Wang; Jian Feng; Rongqiang Liu
12:00	92	Yixin Shao	Design of a novel adjustable passive constant-force mechanism based on magnetically modulated beam mechanisms Yixin Shao; Zhi Wang; Shiwei Liu; Fei Liu; Xilun Ding; Wuxiang Zhang
12:15	127	Siyuan Ye	Let joints based over-constrained origami structure design Siyuan Ye; Fatemeh Kavousi; Guangbo Hao
12:30	110	Andrzej Pazur	Determination of a total and partial operational readiness for a complex technical system on the example of a mobile medical module Andrzej Pazur; Andrzej Szelmanowski; Slawomir Michalak
12:45	188	Gil Ribeiro	A Methodology for project design parametrization Bruno Pereira; Gil Ribeiro; Jorge Ortega; Hélder Puga; Paulo Flores

TECHNICAL SESSIONS VII - C			Friday, June 28 - 11:15 - 13:00
GEARS AND TRANSMISSIONS			
Room John Uicker			CHAIR Domenico Mundo
Time	ID	Presenting Author	Title
11:15	199	Alessio Artoni	A Manufacturable Higher-Degree Flank Modification for Contact Enhancement in Bevel Gears Alessio Artoni; Eugeniu Grabovic; Marco Gabiccini; Massimo Guiggiani
11:30	138	Giuseppe Sciarra	Pitting resistance determination for beveloid gears Giuseppe Sciarra; Giovanni Mottola; Luca Pezzuolo; Gustavo Casamenti; Marco Carricato
11:45	49	Jose Pedrero	Analysis of the tooth-root stress of external spur gears with high effective contact ratio Jose Pedrero; Miryam Sánchez; Miguel Pleguezuelos; Alfonso Fuentes-Aznar
12:00	157	João Marafona	Influence of dynamics on gear meshing power loss João Marafona; Pedro Marques
12:15	221	Zhenglong Fang	Local cutting feature considered universal modelling for optimizing kinematic set of cylindrical cutters in gear skiving Jia Sun; Qian Zhang; Zongwei Ren; Zhenglong Fang
12:30	200	Ibai Ulacia	Influence of mesh stiffness in rack and pinion positioning Ibai Ulacia; Ibon Irazustabarrena; Andrew Katz; Oier Franco; Aurea Iñurritegui; Kaan Erkorkmaz
12:45	44	Mircea Neagoe	Conceptual design of a counter-rotating vertical-axis wind system with reconfigurable planetary speed increaser Mircea Neagoe; Radu Gabriel Saulescu

TECHNICAL SESSIONS VII - D			Friday, June 28 • 11:15 – 13:00
BIOMECHANICS			
Room Andrés Kecskeméthy			CHAIR Raphael Dumas
Time	ID	Presenting Author	Title
11:15	152	Daniel García-Vallejo	Transverse deformation of the trajectory of biomechanical markers as an indicator of neurological injury in post-stroke patients Daniel García-Vallejo; J Ojeda; J Mayo; P Ferrand-Ferri; A.G. Agúndez; E Martín-Sosa; M.J. Zarco-Periñán
11:30	46	Alberto Borboni	EWA 3: A Single Size Self-Adapting Assistive Exoskeleton for Lifting Alberto Borboni, Antonio Arbore; Irraivan Elamvazuthi
11:45	222	Claudiu Zaleschi	Human forearm model for medical recovery and functional monitoring system Adriana Comanescu; Claudiu Zaleschi; Doru Boblea; Andreea Neagoe
12:00	191	Jan Krivošej	Eigenmotion Concept of Exoskeleton of Upper Limb Jan Krivošej; Jakub Švadlena; Júlia Bodnárová; Matej Daniel; Zbyněk Šika
12:15	109	Tayyab Ahmad Ansari	Conceptual design of a novel wearable knee exoskeleton using parallel mechanism Tayyab Ahmad Ansari; Ketao Zhang
12:30	139	Dhruva Rajesh Khanzode	A novel method for 3D workspace estimation of robotic surgical instruments in minimally invasive surgery using medical imaging data Dhruva Rajesh Khanzode; Ranjan Jha; Damien Chablat; Alexandra Thomieres; Emilie Duchalais
12:45	223	Mehdi Ghiassi	An efficient method for drift-free IMU orientation estimation during running: application to shank and foot Mehdi Ghiassi; Andrés Kecskeméthy
13:00 – 14:00			Lunch

TECHNICAL SESSIONS VIII - A			Friday, June 28 - 14:00 – 15:30
COMPLIANT MECHANISMS			
Room Erskine Crossley			CHAIR Matteo Verotti
Time	ID	Presenting Author	Title
14:00	89	Siyuan Ye	Type Synthesis of Morphing Mechanisms Consisting of Multi-Stable Compliant Mechanisms and Multi-DOF Linkages Generated from Baranov Trusses Yinjun Zhao; Jieyu Wang; Yingzhong Tian; Jiacheng Li; Guangbo Hao; Siyuan Ye; Fengfeng Xi
14:15	12	Nicola Bailey	Prediction of the shape deflection of nonlinear multistable compliant mechanisms Jianhang Ding; Patrick Keogh; Nicola Bailey
14:30	27	Christian Iandiorio	Kinematics analysis of flexure hinges under large displacements: experimental testing and comparative evaluation of analytical, numerical and pseudorigid models Christian Iandiorio; Luca Farotto; Marco Cirelli; Pietro Salvini; Pier Paolo Valentini
14:45	187	Shane Johnson	Design of a semi actively controlled adjustable quasi zero stiffness mechanism Tanzeel Ur Rehman; Shane Johnson
15:00	158	Ruiyu Bai	Achieving high-quality and large-stroke constant torque by axial force release Ruiyu Bai; Nan Yang; Zhiwei Qiu; Bo Li; Shane Johnson; Guimin Chen
15:15	136	Sajjad Keshtkar	Design and assessment of novel soft fingers with variable stiffness for gripping tumbling objects in space Alfredo Puente-Flores; Hirohisa Kojima; Sajjad Keshtkar

TECHNICAL SESSIONS VIII - B			Friday, June 28 - 14:00 - 15:30
MECHANISM AND MACHINE DESIGN			
Room Terry Shoup			CHAIR Hélder Puga
Time	ID	Presenting Author	Title
14:00	88	Hao Chen	Expanding the family of bundle folding deployable network mechanisms using plane-symmetric 6R deployable polygon mechanisms and generalized scissor-like elements Hao Chen; Jiayu Chen; Weizhong Guo; Mingxuan Wang; Caizhi Zhou
14:15	34	Binbin Peng	Dynamic design of a novel 4-DOF high-speed parallel mechanism with dual drive chain Binbin Peng; Qingzhan Ma; Diansheng Shi
14:30	82	Swathi Saravanan	Thickness accommodation for mountain valley switching in morph origami Swathi Saravanan; Phanisri Pradeep Pratapa
14:45	98	Hui Yang	Design and analysis of modular architecture deployable antenna mechanism based on two-high positioning nodes tetrahedral basic unit mechanism Enbo Liu; Yongsheng Zhao; Tengfei Cao; Yundou Xu; Jiantao Yao; Xinlu Wei
15:00	101	Huijuan Feng	Origami-inspired Design Methodology of Meta-chiral Mechanisms and Their Screw-based Reconfiguration Evolution Mi Li; Huijuan Feng; Jian S. Dai
15:15	121	Xianwen Kong	Construction of variable-DOF single-loop spatial mechanisms using Bennett mechanisms Xianwen Kong

TECHNICAL SESSIONS VIII – C			Friday, June 28 • 14:00 – 15:30
ROBOTS AND MANIPULATORS			
Room John Uicker			CHAIR Huiping Shen
Time	ID	Presenting Author	Title
14:00	117	Abbas Fattah	Optimized flapping wing mechanism Tim Armstrong; Matt Buckley; Nick Lambert; Carson Reuter; Dean Shaub; Aidan Weitzel; Abbas Fattah
14:15	178	Juan Pablo Mora Garota	Natural motion design for energy-efficient parallel robots in pick-and-place tasks Juan Pablo Mora Garota; Carlos Francisco Rodriguez; Burkhard Corves
14:30	147	Yue Zhang	Kinematics analysis and performance optimization of a novel asymmetric parallel biped robot Yue Zhang; Xizhe Zang; Boyang Chen; Chao Song; Liang Gao; Jie Zhao
14:45	132	Jisen Li	Design and optimization of a transformable underwater robot Jisen Li; Qiujun Huang; Jian Zhu
15:00	228	Pietro Davide Maddio	Configuration Optimization to Enhance Stiffness of a Modular Snake-Like Robot Pietro Davide Maddio; Alessandro Cammarata; Rosario Sinatra; Yingzhong Tian; Yinjun Zhao; Fengfeng Xi
15:15	220	Brandon-Daniel Salazar-Bravo	Optimization of walking humanoid robots by applying a global energy criterion Daniel-Roberto Soto-Delgado; Brandon-Daniel Salazar-Bravo; J. Alfonso Pamanes; J. Jesus Pamanes

TECHNICAL SESSIONS VIII - D			Friday, June 28 - 14:00 – 15:30
ROTATING MACHINERY AND TRIBOLOGY			
Room Andrés Kecskeméthy			CHAIR Josu Aguirrebeitia
Time	ID	Presenting Author	Title
14:00	113	Jerzy Margielewicz	System for harvesting energy from continuously rotating machine elements Jerzy Margielewicz; Damian Gaska; Sławomir Bucki; Grzegorz Litak
14:15	216	Ali Tatar	Experimental modal analysis of a planetary geared rotor system and its numerical model validation Ali Tatar; Christoph Schwingshackl; Michael Friswell
14:30	64	Anqi Huang	Design and verification of a contact state self-monitoring mechanical seal based on triboelectric effect Anqi Huang; Jia Cheng; Ying Liu
14:45	213	Vishal Singh	Impact of wear on the performance parameters of PVP fluid operated 4-pocket conical hybrid journal bearing Vishal Singh; Arvind K. Rajput
15:00	70	Haoran Liao	The scale identification interval method for solving fractal characteristic length scale Haoran Liao; Ying Liu; Hongju Li
15:15	85	Vlad Carlesco	Static and kinetic friction coefficients in stick-slip processes Dumitru Olaru; Cezara-Mariuca Oprisan; Bogdan Chiriac; Ana Tufescu; Vlad Carlescu

KEYNOTE LECTURE III			Friday, June 28 - 15:35 – 16:15
Room Erskine Crossley			CHAIR Filipe Marques
Time	ID	Presenting Author	Title
15:35	30	Pier Paolo Valentini	Present and future trends in the integration between enabling technologies and mechanism and machine design Pier Paolo Valentini; Marco Cirelli

16:15-16:45	AWARDS AND CLOSING CEREMONY – Main Hall
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POSTER SESSION		Permanent Exhibition
ID	Presenting Author	Title
13	Marco Ceccarelli	IFTToMM Permanent Commission of History of MMS: A Poster on the activities Marco Ceccarelli; Teun Koetsier; Alessandro Gasparetto
18	Hongye Wu	Comparison study on motion/force transmissibility of a new 6-dof parallel mechanism and Gough-Stewart platform Hongye Wu; Haitao Liu; Wei Yue; Shaofei Meng; Qingpo Xu; Tian Huang
45	Francisco Novais	Dynamic modeling and analysis of a Formula Student car with focus on the friction behavior of the vehicle suspension subsystem Francisco Novais; Filipe Marques; Paulo Flores
51	Maria Francisca Sousa	Experimental and computational analysis of the human gait with crutches Maria Francisca Sousa; Mariana Rodrigues da Silva; Filipe Marques; Sérgio B. Gonçalves; Miguel Tavares da Silva; Paulo Flores
60	Joana Coelho	On the hexapod robot's gait optimization: A dynamic perspective on the limbs actuation Joana Coelho; Filipe Marques; Bruno Dias; Gil Lopes; Paulo Flores
67	Jiale Han	A novel multi-pulse friction compensation strategy for hybrid robots Jiale Han; Haitao Liu; Xianlei Shan; Juliang Xiao; Tian Huang
87	Fernando Gonçalves	Development of a multibody simulator to study the CHARMIE robot Fernando Gonçalves; Tiago Ribeiro; A. Fernando Ribeiro; Gil Lopes; Paulo Flores
122	Yonghong Chen	Generalized Model of a Local Conjugate Meshing Hourglass Worm Drive Based on Medium Gear Zhongtao Li; Yonghong Chen; Chenyang Dou; Fei Liu; Zhenglin Yang; Wenjun Luo; Bingkui Chen
123	Yonghong Chen	Research on Meshing Characteristics of a Novel Internal Whirling Toroidal Worm Drive Zhenglin Yang; Yonghong Chen; Fei Liu; Chenyang Dou; Zhongtao Li; Wenjun Luo; Bingkui Chen
124	Yonghong Chen	Study on Meshing Stiffness and Load Distribution of TI Worm Drive Fei Liu; Yonghong Chen; Zhongtao Li; Chenyang Dou; Zhenglin Yang; Wenjun Luo; Bingkui Chen
126	Ehsan Askari	An evolutionary hybrid approach to identify multibody systems with partially known physics Ehsan Askari; Guillaume Crevecoeur; Paulo Flores
144	Yachao Sun	Evaluation of meshing stiffness for spur gears supported by cantilever rotors based on extended coefficient matrix method Yachao Sun; Jianghai Shi; Yang Yang; Minggang Du; Hongrui Cao
148	Hamid Lankarani	Precision Tracking of Shoulder Joint Center for Bioinspired Exoskeleton Development Yimesker Yihun, Pablo Delgado and Hamid Lankarani
182	Inês Gomes	A simple and comprehensive approach to formulate and solve dynamics problems in a non-traditional engineering course Francisco Novais; Mariana Rodrigues da Silva; Inês Gomes; Hélder Puga; Paulo Flores
184	Mariana Rodrigues da Silva	On the modeling of crutch-assisted locomotion: examining the interfaces with the ground and with the human body Maria Francisca Sousa; Mariana Rodrigues da Silva; Filipe Marques; Miguel Tavares da Silva; Paulo Flores