

MMT Symposium

60th Anniversary of Mechanism and Machine Theory

SCIENTIFIC PROGRAM

June 21-23, 2026 | Porto, Portugal



Program at a Glance

Time	Sunday, June 21			
15:00-18:00	WELCOME RECEPTION AND PRE-REGISTRATION – Círculo Universitário do Porto			
Time	Monday, June 22			
07:30	REGISTRATION			
08:30	OPENING CEREMONY – Room Azevedo Albuquerque			
08:50	KEYNOTE LECTURE I – PEDRO CAMANHO – Room Azevedo Albuquerque			
09:30	TECHNICAL SESSIONS I			
	Robots and Manipulators Room Azevedo Albuquerque	Multibody Dynamics Room Erskine Crossley	Mechanism and Machine Design Room Terry Shoup	Computational Kinematics Room John Uicker
11:00	Coffee-Break and Poster Session			
11:30	TECHNICAL SESSIONS II			
	Robots and Manipulators Room Azevedo Albuquerque	Multibody Dynamics Room Erskine Crossley	Control and Mechatronics Room Terry Shoup	Gears and Transmissions Room John Uicker
13:00	Lunch			
14:00	TECHNICAL SESSIONS III			
	Robots and Manipulators Room Azevedo Albuquerque	Miscellaneous Online Session Room Erskine Crossley	Nonlinear Systems and Vibration Room Terry Shoup	Biomechanics Room John Uicker
15:45	Coffee-Break and Poster Session			
16:15	TECHNICAL SESSIONS IV			
	Robots and Manipulators Room Azevedo Albuquerque	Mechanism and Machine Design Room Erskine Crossley	Control and Mechatronics Room Terry Shoup	Gears and Transmissions Room John Uicker
17:45	PORT WINE RECEPTION – University Garden			

Time	Tuesday, June 23			
08:30	REGISTRATION			
09:00	TECHNICAL SESSIONS V			
	Computational Kinematics Room Azevedo Albuquerque	Multibody Dynamics Room Erskine Crossley	Gears and Transmissions Room Terry Shoup	Compliant Mechanisms Room John Uicker
10:45	Coffee-Break and Poster Session			
11:15	TECHNICAL SESSIONS VI			
	Computational Kinematics Room Azevedo Albuquerque	Multibody Dynamics Room Erskine Crossley	Gears and Transmissions Room Terry Shoup	Compliant Mechanisms Room John Uicker
13:00	Lunch			
14:00	TECHNICAL SESSIONS VII			
	Rotating Machinery Room Azevedo Albuquerque	Biomechanics Room Erskine Crossley	Mechanism and Machine Design Room Terry Shoup	Robots and Manipulators Room John Uicker
15:30	KEYNOTE LECTURE II – PAULO FLORES – Room Azevedo Albuquerque			
16:00	AWARDS AND CLOSING CEREMONY – Room Azevedo Albuquerque			
19:00	BANQUET – Hilton Porto Gaia			

Monday, June 22

07:30

REGISTRATION

08:30–08:50

OPENING CEREMONY – Room Azevedo Albuquerque

KEYNOTE LECTURE I		Monday, June 22 - 08:50 – 09:30
Room Azevedo Albuquerque		CHAIR Paulo Flores
Time	Presenting Author	Title
08:50	Pedro Camanho	Design and analysis of composite systems across the scales based on physical and data-driven models

TECHNICAL SESSIONS I – A			Monday, June 22 - 09:30 – 11:00
ROBOTS AND MANIPULATORS			
Room Azevedo Albuquerque			CHAIR Tan Sy Nguyen
Time	ID	Presenting Author	Title
09:30	38	Joshua Flight	Feasible wrench sets of redundant parallel manipulators Joshua Flight; Clément Gosselin
09:45	60	Yi Han	Design of a cable-driven hybrid serial-parallel skeletal morphing wing for hypersonic aircraft Yan Wang; Hui Yang; Siqiang Xing; Yi Han
10:00	70	Xiaofei Liu	Type synthesis and performance optimization of 2R1T parallel mechanisms with third-order actuation redundancy Xiaofei Liu; Yu Wang; Zongqiang Feng; Jiantao Yao; Yongsheng Zhao
10:15	158	Donglai Xu	A bipedal robot based on multi-loop coupled parallel leg mechanism Donglai Xu; Sheng Guo; Fuqun Zhao; Xiaodong Jin; Marco Carricato
10:30	195	Dmitry Malyshev	Method for optimization of planar parallel robots taking into account singularities based on automatic derivation of kinematic dependencies Larisa Rybak; Dmitry Malyshev; Dmitry Dyakonov
10:45	201	Kevin Gaitan	Actuation redundancy management of the 3-DOF PercuCob-RCM parallel manipulator Kevin Gaitan; Juan Sandoval; Stéphane Caro

TECHNICAL SESSIONS I - B			Monday, June 22 • 09:30 – 11:00
MULTIBODY DYNAMICS			
Room Erskine Crossley			CHAIR Hamid Lankarani
Time	ID	Presenting Author	Title
09:30	1	Basilio Lenzo	How to obtain analytical solutions for vehicle phase plane equilibrium and stability analysis Basilio Lenzo; Mariagrazia Tristano
09:45	20	Angelo Domenico Vella	Lumped-mass tyre modelling for road-envelope analysis Angelo Domenico Vella; Alessandro Vigliani
10:00	131	Kun Wang	DEM-multibody coupling simulations of spring tires interacting with granular terrain Kun Wang; Qiang Tian; Haiyan Hu
10:15	88	Kaiming Zhang	A coupled multibody-granular dynamics framework for high-fidelity simulation of lunar robot locomotion Kaiming Zhang; Yang Yu; Zhijun Song; Jingchang Xie; Kunen Peng
10:30	114	Máté Antali	Analysis and improvements of the classical model of railway wheelset dynamics Máté Antali
10:45	189	Xinxin Yu	Comparison of different wheel-rail constraint-based contact approaches Erik Snellman; Xinxin Yu

TECHNICAL SESSIONS I - C			Monday, June 22 • 09:30 – 11:00
MECHANISM AND MACHINE DESIGN			
Room Terry Shoup			CHAIR Shane Johnson
Time	ID	Presenting Author	Title
09:30	56	María Ramírez Berasategui	Bridging theory and reality: Integrating VVUQ standards and low-cost experimental analysis in mechanism synthesis education Ramon Gutiérrez Moizant; Fernando Viadero-Monasterio; Miguel Meléndez-Useros; María Ramírez-Berasategui; Daniel García-Pozuelo Ramos
09:45	26	Benedict Röder	Neural density estimation for the synthesis of crank-driven four-bar mechanisms Benedict Röder; Henrik Ebel; Peter Eberhard
10:00	188	Ibai Ulacia	DMLab: Design and modelling of machine elements Ibai Ulacia; Aurea Iñurritegui; Aitor Arana; Jon Larrañaga
10:15	83	André Pedroso	Mechanical development of an automatic equipment for bioplastic film testing David Pinto; Raul Campilho; José Barbosa; Filipe Lopes; Francisco da Silva; David Almeida; André Pedroso
10:30	91	Shiwei Liu	Cuboid-shaped Bricard-Sarrus metastructures with constant-zero stiffness Shiwei Liu, Long Li; Shengnan Lyu; Xilun Ding
10:45	140	Sajjad Keshtkar	Spherical four-bar control moment gyroscope: Concept and rotating-torque generation Sajjad Keshtkar; Hirohisa Kojima; Francisco Geu Flores; Wojciech Kowalczyk

TECHNICAL SESSIONS I - D			Monday, June 22 • 09:30 – 11:00
COMPUTATIONAL KINEMATICS			
Room John Uicker			CHAIR Manfred Husty
Time	ID	Presenting Author	Title
09:30	115	Robin Chhabra	Geometry of multibody motion: An intrinsic lie groupoid approach Robin Chhabra; Yael Karshon; M. Reza Emami
09:45	124	Daniel Condurache	Higher-order Cayley transforms and shadow Rodrigues dual vectors: A unified framework for rigid-body kinematic Daniel Condurache; Mihail Cojocari
10:00	68	Ilie Talpasanu	The matroid method in computational mechanics of mechanisms Ilie Talpasanu; Alexandru Talpasanu
10:15	16	Huiping Shen	Topology design and performance analysis of parallel mechanisms with fewer joints Ju Li; Yue Guo; Huiping Shen
10:30	87	Wanting Wang	Tolerance analysis of mechanisms with unilateral constraints Wanting Wang; Zhihua Zhao
10:45	192	Giorgio Figliolini	Kinematic geometry and envelope curves of vehicles when moving along linear tractrices Giorgio Figliolini; Chiara Lanni; Jorge Angeles
11:00 - 11:30		Coffee-Break and Poster Session	

TECHNICAL SESSIONS II - A			Monday, June 22 • 11:30 – 13:00
ROBOTS AND MANIPULATORS			
Room Azevedo Albuquerque			CHAIR Olivier Bruls
Time	ID	Presenting Author	Title
11:30	109	Haoju Wen	Systematic design of reconfigurable hybrid origami robots Haoju Wen; Wenjun Chris Zhang
11:45	146	Karol Muñoz	Comparison of prism-based tensegrity joint architectures Karol Muñoz; Mathieu Porez; Philippe Wenger
12:00	105	Aislinn Mcaleenan	Tolerance design and metrology-assisted fabrication and assembly of parallel robots for high precision surgical operations Aislinn Mcaleenan; Yan Jin; Dan Sun; Johnny Moore
12:15	74	Yukio Takeda	Planar parallel mechanism driven along a curved guide Yukio Takeda; Shota Fujisaka; Masashi Yoshii; Ryota Shioya; Ming Jiang; Koichi Kato; Mathias Huesing; Burkhard Corves; Tomoya Tanaka; Shogo Miura
12:30	186	Anatol Pashkevich	Equivalent transformations of MSA- and VJM-based stiffness models Alexandr Klimchik; Anatol Pashkevich
12:45	175	Qizhi Meng	Enhancing distal motion-force interaction performance of articulated-platform parallel mechanisms via internal parameter design of closed-loop passive limbs Qizhi Meng; Burkhard Corves; Andrés Kecskeméthy

TECHNICAL SESSIONS II - B			Monday, June 22 • 11:30 – 13:00
MULTIBODY DYNAMICS			
Room Erskine Crossley			CHAIR Alessandro Cammarata
Time	ID	Presenting Author	Title
11:30	85	Roberto Guida	Introduction to discrete flexible multibody modelling approach for ball bearings with deformable rings Roberto Guida; Andrea De Martin
11:45	203	Jorge Ambrósio	Impact of new joining processes of new materials of the structure of an automobile on its vehicle handling dynamics Jorge Ambrósio; Pedro Millan; Lucas da Silva
12:00	174	Jozef Bucha	Virtual model of a bus using the FMI standard for co-simulation with Matlab/Simulink Jozef Bucha; Ján Danko; Tomáš Milesich
12:15	159	Pavel Polach	Approaches to modeling leaf springs in railway vehicles and their validation Pavel Polach; Michal Hajžman; Ondřej Skála; Kamil Šimeček
12:30	3	Yongjun Pan	Optimizing ride comfort in four-wheel hub-motor electric vehicles via multibody dynamics and multi-objective algorithms Ling Ma; Yongjun Pan; Wei Liu; Aki Mikkola
12:45	199	Paulo Flores	A geometric characterization for performance evaluation of lubricated clearance joints in multibody systems Bassam Alshaer; Paulo Flores; Hamid Lankarani

TECHNICAL SESSIONS II - C			Monday, June 22 • 11:30 – 13:00
CONTROL AND MECHATRONICS			
Room Terry Shoup			CHAIR Evangelos Papadopoulos
Time	ID	Presenting Author	Title
11:30	112	Jason Bettega	Collocated control of an underactuated cable-driven parallel robot through disturbance observer and inverse dynamics Jason Bettega; Salvatore Marrazzo; Dario Richiede; Alberto Trevisani
11:45	178	Xinrong Li	Multibody dynamics-based feedforward control strategies for wellbore trajectory tracking in directional drilling systems Xinrong Li; Kejie Wang; Jiaqi Chen; Ningyu Wang; Gexue Ren
12:00	33	Nathanaël Jarrassé	Controller design for velocity transmission of Bowden-cable actuators Yaodong Lu; Pablo Nocito; Yannick Aoustin; Sébastien Mick; Qiaoling Meng; Hongliu Yu; Nathanaël Jarrassé
12:15	187	Bálint Bodor	Stability investigation of the model predictive controller: A semi-analytical approach Bálint Bodor; Szabolcs Berezhvai
12:30	200	Karol Zielonka	Modeling, simulation and sensitivity testing of automotive automatic control systems due to backlash and friction Dariusz Żardecki; Mirosław Gidlewski; Marek Jaśkiewicz; Leszek Jemiot; Karol Zielonka
12:45	106	Ricardo de Castro	Safe and robust autonomous drifting of vehicles Ricardo de Castro; Basilio Lenzo; Marco Adami; Marco Cortese; Marco Cazzola; Giovanni Righetti; Tommaso Belluco; Matteo Massaro; Berrydal Moshe; Justin Arroyo

TECHNICAL SESSIONS II - D			Monday, June 22 • 11:30 – 13:00
GEARS AND TRANSMISSIONS			
Room John Uicker			CHAIR Domenico Mundo
Time	ID	Presenting Author	Title
11:30	40	José I. Pedrero	Analysis of the contact stress of beveloid helical gears with parallel axes Miryam B. Sánchez; Giovanni Mottola; Miguel Pleguezuelos; Alfonso Fuentes-Aznar; Jose I. Pedrero; Marco Carricato
11:45	45	Hui Guo	A calculation method for the asymmetric helical gear meshing stiffness considering the slice coupling effect Zhihui Hou; Hui Guo; Shengwen Hou; Xiaoping Ran; Yuhang Ruan
12:00	82	Alfonso Fuentes	Simulation and validation of the transmission error and meshing stiffness of internal helical gears with profile modification Miguel Pleguezuelos; Miryam B. Sánchez; Andrés F. Hidalgo; Jose I. Pedrero; Alfonso Fuentes
12:15	79	Francisco Ricardo	Artificial neural network for modelling gear mesh stiffness Francisco Ricardo; João Marafona; Stéphane Portron; Carlos Fernandes; Pedro Marques; João Tavares
12:30	183	Mattin Maiztegui	Accurate real contact area computation of anisotropic rough surfaces Mattin Maiztegui; Jon Larrañaga; Ibai Ulacia
12:45	154	Siyuan Liu	A universal design and gear surface quality control methodology of face-milled hypoid gear with large range of offset and shaft angle Siyuan Liu; Chaosheng Song; Caichao Zhu
13:00 - 14:00			Lunch

TECHNICAL SESSIONS III - A			Monday, June 22 • 14:00 – 15:45
ROBOTS AND MANIPULATORS			
Room Azevedo Albuquerque			CHAIR Marco Carricato
Time	ID	Presenting Author	Title
14:00	101	Pietro Davide Maddio	Enhancing snake robot stiffness in confined spaces: Pose optimization with obstacle avoidance Yinjun Zhao; Pietro Davide Maddio; Alessandro Cammarata; Rosario Sinatra; Yingzhong Tian; Fengfeng Xi
14:15	147	Hung Hon Cheng	Cable anchor sensitivity analysis for reconfigurable cable robots Hung Hon Cheng; Josie Hughes
14:30	100	Olivier Bruls	An ALE-SE(3) beam formulation for the simulation of cable-driven soft robots Olivier Devigne; Olivier Bruls
14:45	165	Erwei Li	Configuration design and continuous workspace feasibility analysis of an over-redundant cable-driven refueling mechanism based on a shipborne gantry crane Zhiwei Jia; Erwei Li; Hansen Ma
15:00	152	Jorge Francisco Aznar Ortega	Kinematics and workspace of a cuspidal modular parallel robot Adrián Peidro; Paula Mollá-Santamaría; Jorge Francisco Aznar Ortega; Luis Miguel Jiménez; Oscar Reinoso
15:15	141	Bogdan Gherman	Thermal-based stiffness modulation of flexible surgical instruments for robot-assisted minimally invasive surgery Doina Pislă; Bogdan Gherman; Ionut Zima; Alexandru Pusca; Adrian Pislă; Marius Miclaus; Calin Vaida; Damien Chablat
15:30	102	Aikaterini Smyrli	Morphological intelligence in passive dynamics: A design investigation of biomechanically-inspired bipedal robots Aikaterini Smyrli; Evangelos Papadopoulos

TECHNICAL SESSIONS III - B			Monday, June 22 • 14:00 – 15:15
MISCELLANEOUS - ONLINE SESSION			
Room Erskine Crossley			CHAIR João Marafona
Time	ID	Presenting Author	Title
14:00	27	Dongming Gan	Dynamic energy-optimal anchor configuration on general convex surfaces, enabled by geodesic-based force-consistent modeling Lei Jin; Dongming Gan; Maitha Alqaydi; Mohamed Abduljawad; Yahya Mohammed; Tarek Taha; Ahmad Alattar
14:15	130	Akshay Menon	Kinematic and static analysis of a cable driven continuum robot Akshay Menon; Ashitava Ghosal
14:30	144	Madhu Raghavan	Zero stiffness mechanism for constant compression pressure on prismatic and pouch cells in battery modules Madhu Raghavan; Chinmaya Patil; Shashank Ramesh
14:45	148	Konstantin Ivanov	Creation of a class of self-regulating mechanisms Konstantin Ivanov
15:00	120	Yogesh Pratap Singh	A Gough-Stewart platform based external fixation system for deformity correction in orthopedics Yogesh Pratap Singh; Kiran Saldanha; Ashitava Ghosal
15:15	133	Raul Alberto Bernal-Orozco	Modeling and control-oriented simulation of DBD plasma actuators for aerodynamic performance enhancement Raul Alberto Bernal-Orozco; Oliver Marcel Huerta-Chavez; Genaro Carreon-Carrera

TECHNICAL SESSIONS III – C			Monday, June 22 • 14:00 – 15:45
NONLINEAR SYSTEMS AND VIBRATION			
Room Terry Shoup			CHAIR Mattia Battarra
Time	ID	Presenting Author	Title
14:00	128	Witold Luty	Unsteady-state tire cornering under dynamic normal load variations Witold Luty; Karol Zielonka
14:15	135	Tigran Parikyan	Modal analysis of engines and powertrains with AVL EXCITE™: An overview Tigran Parikyan
14:30	142	Edgar Eliseo Franco Ortiz	Ring-down analysis using a three-axis accelerometer for a trajectory with a trapezoidal velocity profile Edgar Eliseo Franco Ortiz; Carlos Rodriguez Donate; Jacob Gonzalez Villagomez; Luis Manuel Ledezma Carrillo
14:45	155	Zbyněk Šika	Optimization of nonlinear active absorbing for compliant planar mechanisms Zbyněk Šika; Jan Krivošej; Jakub Švadlena
15:00	167	Leonel Maximiliano Gomez Villarejo	Inverse acoustic fingerprinting for non-invasive identification of precessing vortex core in combustion chambers Leonel M. Gomez Villarejo; Oliver M. Huerta Chavez; Raul A. Bernal Orozco; Luis A. Rodriguez Salinas; Gibran J. Garnica Castro
15:15	25	Yizhar Or	Experiments and analysis of twistcar-type robots Yizhar Or; Rom Levy; Anna Zigelman; Ari Dantus; Zitao Yu
15:30	123	Hanna Zsofia Horvath	The effect of contact force models on the stability of two-wheeled trailers with a simplified model Hanna Zsofia Horvath; Mate Antal

TECHNICAL SESSIONS III - D			Monday, June 22 • 14:00 – 15:45
BIOMECHANICS			
Room John Uicker			CHAIR Nicola Sancisi
Time	ID	Presenting Author	Title
14:00	18	Nursultan Zhetenbayev	Torque-angle modeling of a two-degree-of-freedom ankle prosthesis Zhanar Bigaliyeva; Sayat Akhmejanov; Nursultan Zhetenbayev; Aidos Sultan; Arman Uzbekbayev; Ozhikenov Kassymbek; Yerkebulan Nurgizat; Abu Alim Ayazbay; Gani Sergazin
14:15	47	Aidos Sultan	Design and prototype development of a research-oriented passive foot prosthesis with a dual-spring elastic mechanism and shock-absorbing sole Nursultan Zhetenbayev; Aidos Sultan; Ussama Abujazar; Ozhikenov Kassymbek; Yerkebulan Nurgizat; Gani Sergazin
14:30	97	Lorenzo Maggi	Design and validation of an impedance-controlled robotic system for biomechanical joint characterization Lorenzo Maggi; Matilde Tomasi; Nicola Secciani; Benedetto Allotta; Alessio Artoni
14:45	122	Christian Mele	Design of a rigid and compliant inverted 4-bar mechanism to emulate polycentric misalignment for lower-limb exoskeleton mannequins Christian Mele; Jhilik Bose; James Tung; Katja Mombaur
15:00	126	Linan Yin	Influence of human body variability on seat-to-head transmissibility Linan Yin; Jianqiao Guo; Yanfei Jin; Jingwei Meng; Qiang Tian; Haiyan Hu
15:15	161	Sérgio Gonçalves	Gravity compensation mechanisms for passive and quasi-passive exoskeletons Marla Weltken; Sérgio Gonçalves; Miguel Tavares da Silva
15:30	80	Marko Ackermann	Assessing the tipping over risk of rollators during standing up in younger and older adults Marko Ackermann; Katja Mombaur
15:45 – 16:15		Coffee-Break and Poster Session	

TECHNICAL SESSIONS IV - A			Monday, June 22 • 16:15 – 17:45
ROBOTS AND MANIPULATORS			
Room Azevedo Albuquerque			CHAIR Doina Pisla
Time	ID	Presenting Author	Title
16:15	22	Shaoheng Hu	ODE-based dynamic modeling of multi-loop robots and its application to MPC Shaoheng Hu; Xianwen Kong; Guodong Yin
16:30	52	Zvi Chapnik	Sample-efficient learning of body-environment interaction of an underactuated system Zvi Chapnik; Yizhar Or; Shai Revzen
16:45	64	Yi Han	Design and kinematics of modular variable-stiffness skeleton mechanism for Z-folded morphing wing based on waterbomb-origami Yi Han; Hui Yang; Yan Wang
17:00	116	Xiaofei Liu	Design and kinematic characteristic analysis of a novel redundantly actuated parallel mechanism for high-precision grinding Yanhua Tang; Yaning Li; Yu Wang; Xiaofei Liu; Jinyang He; Yuantao Bu
17:15	69	Jian Zheng	A novel series elastic actuator with mechanical stoppers for Assist-As-Needed in sit-to-stand assistance Ming Jiang; Jian Zheng; Seunghyun Kim; Hiroto Miyatake; Kotaro Muramatsu; Jun Nango; Yukio Takeda
17:30	164	Esdras S. da Silva	Experimental validation of a mechanically synchronized modular legged robot for in-pipe locomotion Esdras S. da Silva; Rafael W. Duarte; Gustavo Queiroz; Duber F. Vergara; Gustavo V. Souza; Henrique Simas; Tiago C. Pinto; Daniel Martins

TECHNICAL SESSIONS IV - B			Monday, June 22 • 16:15 – 17:45
MECHANISM AND MACHINE DESIGN			
Room Erskine Crossley			CHAIR Marco Cirelli
Time	ID	Presenting Author	Title
16:15	8	Guanglei Wu	FEA-based structural design of a serial variable stiffness joint Guanglei Wu; Bin Niu
16:30	32	Yangyang Xiao	Multi-lattice topology optimization with competitive weighting and penalty-driven lattice selection under dynamic loading Yangyang Xiao; Shu Li; Nikos D. Lagaros; Jie Geng
16:45	76	Shane Johnson	Modeling and robustness characterization of large-stroke QZS mechanisms under ultra-low frequency excitation Shun Bi; Shane Johnson
17:00	121	Maria Cristina Valigi	A novel gripper for space debris collection Silvia Logozzo; Sebastiano Angelella; Maria Cristina Valigi
17:15	153	Fengfeng Xi	Kinematic modeling of a metamaterial system for morphing structure applications Aaron Benatar; Fengfeng Xi; Amitabha Ghosh
17:30	23	Rico Zöllner	Tribology in material handling: Winches, nonlinear rope friction, fiber ropes, fused filament fabrication components Rico Zöllner; Raimond Hofmann; Martin Anders; Thorsten Schmidt

TECHNICAL SESSIONS IV - C			Monday, June 22 • 16:15 – 17:45
CONTROL AND MECHATRONICS			
Room Terry Shoup			CHAIR Sajjad Keshtkar
Time	ID	Presenting Author	Title
16:15	34	Paweł Olejnik	A multi-axis gimbal mechanism as an experimental platform for controlled rotational excitation Paweł Olejnik; Łukasz Kuźnicki; Maciej Rożniata
16:30	63	Lei Chen	HQP-based adaptive compliant control for constrained operations of space manipulators Lei Chen; Jun He; Feng Gao
16:45	19	Nursultan Zhetenbayev	Experimental validation of a bluetooth-based remote-controlled ankle exoskeleton for rehabilitation Aknur Duisebayeva; Gulzhamal Tursunbayeva; Nursultan Zhetenbayev; Aidos Sultan; Ozhikenov Kassymbek; Gani Sergazin
17:00	86	Tan Sy Nguyen	Design and prototyping of a new collaborative hand cart for moving heavy payloads in factories Tan Sy Nguyen; Olivier Couillard
17:15	169	Luis Alfonso Rodríguez Salinas	Synthesis and structural characterization of nanostructured tin dioxide via sol-gel for acetone sensing application Luis A. Rodríguez Salinas; Georgina García Pacheco; Jacobo E. Munguía Cervantes; Alfredo López Monroy; Leonel M. Gómez Villarejo
17:30	185	Jorge Luis Cervantes Fraustro	Synthesis and structural characterization of nanostructured titanium dioxide via sol-gel for memristive CO sensing in aerospace applications Jorge L. Cervantes Fraustro; Georgina García Pacheco; Jacobo E. Munguía Cervantes; Gerardo Villa Martínez

TECHNICAL SESSIONS IV - D			Monday, June 22 • 16:15 – 17:45
GEARS AND TRANSMISSIONS			
Room John Uicker			CHAIR Alfonso Fuentes
Time	ID	Presenting Author	Title
16:15	166	Shibo Mu	Meshing theory of point-contact Archimedean face worm gear drive Shibo Mu; Xingwei Sun; Zhixu Dong; Jianlong Zhao; Liya Jin; Weifeng Zhang; Yin Liu; Heran Yang; Haosheng Hao; Yaping Zhao
16:30	118	Yuansheng Zhou	A computer-aided optimization method for complex transmission systems of face gears via mechanism-data fusion Bingquan Lu; Yuansheng Zhou; Zhongwei Tang; Jinyuan Tang
16:45	151	Aurea Iñurritegui	Full-scale validation of fretting-map predictions for aerospace-grade crowned involute splines AISI 9310 Aurea Iñurritegui-Marroquin; Andrea Mura; Aitor Arana; Ander Elgoro; Francesca Cura
17:00	103	Jing Chong Low	Non-dimensionalized spectral analysis of gear shape deviation networks: Identification of kinematic errors via node-normalized Laplacian and scale-invariant discrete Fourier transform Jing Chong Low; Daisuke Iba; Yuichiro Seo; Shu Takata; Naoki Yamashita; Kunitoshi Kawano
17:15	55	Zhen Chen	Computerized design, tooth contact analysis and stress analysis of pure rolling spiral bevel gears for orthogonal shafts transmission Zhen Chen; Wenwei Luo; Chao He; Kai Zhu; Xiaoping Xiao; Yangzhi Chen; Alfonso Fuentes
17:30	127	Xiaoping Xiao	Methods of TCA and LTCA for pure-rolling bevel line gear with the actively designed contact trace Xiaoping Xiao; Hualin Xie; Chao He; Kai Zhu; Zhen Chen; Yangzhi Chen
17:45 – 19:00		PORT WINE RECEPTION – University Garden	

Tuesday, June 23

08:00

REGISTRATION

TECHNICAL SESSIONS V - A

Tuesday, June 23 - 09:00 – 10:45

COMPUTATIONAL KINEMATICS

Room Azevedo Albuquerque

CHAIR **Giorgio Figliolini**

Time	ID	Presenting Author	Title
09:00	6	Huiping Shen	New insights into three fundamental issues of parallel mechanisms and its research progresses Huiping Shen; Xingyu She; Ju Li; Pengda Ye
09:15	14	Vincenzo Di Paola	Families of screw systems Vincenzo Di Paola; Jonathan Selig
09:30	125	Daniel Condurache	Closed-form Baker–Campbell–Hausdorff–Dynkin formula for rigid body displacements and its significance for Mechanism and Machine Theory Daniel Condurache; Mihai Cojocari
09:45	66	Manfred Husty	Complete singularity analysis of KINOVA Link 6 type robots Manfred Husty; Calin Vaida; Bogdan Gherman; Damien Chablat; Doina Pisla
10:00	156	Yucai Hu	Developable triangle-based Kokotsakis polyhedra Yucai Hu; Guoqiang Zhu; Ke Chen
10:15	196	Qiaode Jeffrey Ge	Towards a methodology for interpretable embodied kinematic intelligence via null-space analysis of G-pose matrix Qiaode Jeffrey Ge; Huan Liu
10:30	113	Enrique Carrillo Li	Kinematic synthesis of a vertex-coupled single-DOF open-sheet, finite-thickness Yoshimura pattern using sliding multi-hinge fold modules Enrique Roberto Carrillo Li; Lena Zentner; Enrique Pujada Gamarra; Daniel Lavayen Farfan; Jorge Antonio Rodríguez Hernández

TECHNICAL SESSIONS V - B			Tuesday, June 23 • 09:00 – 10:45
MULTIBODY DYNAMICS			
Room Erskine Crossley			CHAIR Jorge Ambrósio
Time	ID	Presenting Author	Title
09:00	36	Francisco Novais	Estimation of friction parameters utilizing experimental data Francisco Novais; Filipe Marques; Paulo Flores; Hamid M. Lankarani
09:15	65	Alessandro Cammarata	A frictional contact formulation for planar mechanisms Alessandro Cammarata; Rosario Sinatra; Pietro Davide Maddio
09:30	94	Victor Smeets	Frame friction model identification for a weaving loom system Victor Smeets; Frank Naets; Konstantinos Gryllias
09:45	119	Balazs Janos Bekesi	Three-parameter bifurcation analysis of a minimal mechanical model with LuGre friction Balazs Janos Bekesi; Gabor Csernak
10:00	180	Zhiwen Xiao	Reduced-order modeling of bearings and gears for accurate stress computation Zhiwen Xiao; Zhilu Qi; Xinrong Li; Gexue Ren
10:15	96	Jialiang Sun	Topology optimization and assembly dynamics of a large space structure via heterogeneous modules Jialiang Sun; Quanchen Duan; Dingfeng Ding
10:30	129	Evangelos Papadopoulos	Exploiting passive dynamics for steady-state walking on level and inclined terrain Anargyros-Nektarios Skafidas; Aikaterini Smyrli; Evangelos Papadopoulos

TECHNICAL SESSIONS V - C			Tuesday, June 23 • 09:00 – 10:15
GEARS AND TRANSMISSIONS			
Room Terry Shoup			CHAIR Alessio Artoni
Time	ID	Presenting Author	Title
09:00	54	Antonella Castellano	Beyond exploratory synthesis: How to design a multimode power-split transmission for maximum performance of hybrid electric vehicles Antonella Castellano; Marco Cammalleri
09:15	150	Elias Rechreche	Multi-objective optimization of the flexibility and life-span of grid couplings Elias Rechreche; Jérôme Bruyere; Quentin Le Guennec; Philippe Vex
09:30	5	Mattia Battarra	State of the art review and comparison on rattle index formulations for gear train applications Fabio Bortoluzzi; Mattia Battarra; Emiliano Mucchi; Giorgio Dalpiaz
09:45	184	José Ángel Moncalián Cruz	Study of planet phasing influence on the efficiency of a planetary gear José Ángel Moncalián Cruz; Miguel Iglesias Santanmaría; Alberto Díez Ibarbia; Javier Sánchez Espiga; Alfonso Fernández del Rincón; Fernando Viadero Rueda
10:00	170	Ibai Ulacia	On the feasibility of predicting rolling contact fatigue from uniaxial S-N curves Ibai Ulacia; Iñigo Llavori; Mattin Maiztegui; Aitor Arana; Jon Larrañaga

TECHNICAL SESSIONS V - D			Tuesday, June 23 • 09:00 – 10:45
COMPLIANT MECHANISMS			
Room John Uicker			CHAIR Just Herder
Time	ID	Presenting Author	Title
09:00	143	Domas Syaifoel	Pseudo-rigid-body modeling can simulate complex compliant mechanisms without solving kinematics Domas Syaifoel; Just Herder; Michaël Wiertlewski
09:15	44	Hannes Jahn	Comparing different beam axis for asymmetric compliant hinges Hannes Jahn; Lena Zentner
09:30	59	Nadine Wahl-Warnken	Influence of angular errors on the constant-force behavior of a straight beam Nadine Wahl-Warnken; Lena Zentner
09:45	31	Haoqian Wang	Soft joint-contact coupled theoretical model for large-deformation thick-panel square-twist origami Haoqian Wang; Haibo Qu; Nikos D. Lagaros; Sheng Guo
10:00	72	Pierre Mougenot	Novel minimally invasive retractor for pancreatectomy Pierre Mougenot; Bogdan Gherman; Calin Vaida; Paul Tucan; Doina Pislă; Damien Chablat
10:15	117	Sogo Koma	Development of a microfluidic device that converts channel deformation into fluid displacement: experimental evaluation of the influence of channel constriction width on fluid moving distance Sogo Koma; Daisuke Iba; Mitsuki Nabeta; Rintaro Mita; Naoki Yamashita; Hitoshi Shimasaki; Junichi Hongu
10:30	28	Jiaqiang Yao	Chained beam constraint model for contact modeling (CBCM-CT): Using contact-position as undetermined coefficient Chengcheng Sun; Jiaqiang Yao; Ruiyu Bai; Haoyu Zhang; Guimin Chen
10:45 – 11:15		Coffee-Break and Poster Session	

TECHNICAL SESSIONS VI – A			Tuesday, June 23 • 11:15 – 13:00
COMPUTATIONAL KINEMATICS			
Room Azevedo Albuquerque			CHAIR Martin Pfurner
Time	ID	Presenting Author	Title
11:15	30	Enrique Pujada	Displacements analysis of the Miura-ori pattern with double-hinge thickness accommodation Enrique Pujada Gamarra; Lena Zentner; Daniel Lavayen Farfán; Jorge Antonio Rodriguez-Hernandez
11:30	139	Giorgio Figliolini	Kinematic properties of the instantaneous centers of zero velocity and acceleration according to their trajectories and centrodes Giorgio Figliolini; Chiara Lanni; Luciano Tomassi
11:45	145	Andreas Mair	Snapping four bar mechanisms: Discrete assembly configurations in closed-loop linkages Andreas Mair; Daren A. Thimm; Martin Pfurner
12:00	58	Hui Yang	Type synthesis of lower-mobility parallel mechanisms for morphing nose based on an atlas method Zhonghao Huang; Hui Yang; Yan Wang
12:15	53	Álvaro Noriega	Solving the problem of dimensional kinematic synthesis using an evolution strategy that utilizes knowledge of derivatives Álvaro Noriega; Igor Fernández de Bustos; María del Rocío Fernández
12:30	197	Gustavo V. Souza	Automated extraction and graph-based representation of mechanism diagrams: Bridging computer vision, structural synthesis, and engineering education Gustavo Valdatti Souza; Angel Esley Garcia Caceres; Andrea Piga Carboni; Daniel Martins
12:45	104	Yu Wang	Degree of freedom analysis of multi-loop coupled mechanisms based on mechanism-truss transformation method Yu Wang; Xiaofei Liu; Yuantao Bu; Yuan Jiang; Jiantao Yao; Yongsheng Zhao

TECHNICAL SESSIONS VI - B			Tuesday, June 23 • 11:15 – 12:45
MULTIBODY DYNAMICS			
Room Erskine Crossley			CHAIR Xinxin Yu
Time	ID	Presenting Author	Title
11:15	61	Xinyan Li	Variable-step Lie-group generalized-α integration: Simplified parameter updates and accuracy estimates Xinyan Li; Zhihua Zhao
11:30	177	Jiayi Zhou	On the numerical errors of multibody dynamics Jacobians induced by the Rodrigues formula Jiayi Zhou; Zhiwen Xiao; Gexue Ren
11:45	194	Márton Kuslits	Modeling of screw mechanisms for control - a multibody approach Márton Kuslits
12:00	134	Antonio Carlo Bertolino	Modeling ball recirculation in multibody ball screw drives Antonio Carlo Bertolino; Roberto Guida; Andrea De Martin; Massimo Sorli
12:15	21	Andrzej Urbaś	Comparative research of some dynamics models of crank-slider mechanism with counterweight Andrzej Urbaś; Jacek Stadnicki
12:30	29	Duo Zhang	Optimizing the cruising speed for trains in a metro-based underground logistics system using multibody dynamics and multi-objective algorithms Duo Zhang; Gisella Tomasini; Yuan-Peng He; Fang-Ru Zhou; Zi-Yu Tao

TECHNICAL SESSIONS VI – C			Tuesday, June 23 • 11:15 – 12:45
GEARS AND TRANSMISSIONS			
Room Terry Shoup			CHAIR José I. Pedrero
Time	ID	Presenting Author	Title
11:15	46	Aurea Iñurritegui	Carburized induced tooth distortions in geared transmissions: Thermo-metallurgical FE prediction and experimental validation Aurea Iñurritegui; Xuban Telleria; Gurutz Cortabitarte; Aitor Arana
11:30	99	Rui Mouzinho	Thermo-mechanical modelling of hybrid polymer gears Rui Mouzinho; Stéphane Portron; Carlos Fernandes
11:45	81	Yuichiro Seo	Shape evaluation of tooth profile sections bounded by the left and right tooth profile deviations of injection-molded plastic gears Yuichiro Seo; Daisuke Iba; Jing Chong Low; Shu Takata; Naoki Yamashita
12:00	13	Khadija Boujallabia	Injection vs. oil bath lubrication impact on power loss and thermal behaviour in an FZG test rig Khadija Boujallabia; Büşra Duran; Jérôme Cavoret; Thibaut Torres; Christophe Changenet; Fabrice Ville
12:15	93	Luca D'Angelo	Analytical approach for compliance identification in lightweight spur gears Luca D'Angelo; Marco Cirelli; Oliviero Giannini; Pier Paolo Valentini
12:30	149	Ramon Ruiz-Orzaez	Computerized generation, tooth contact analysis and stress analysis of pericyclic gear drives Ignacio Gonzalez-Perez; Ramon Ruiz-Orzaez; Alfonso Fuentes-Aznar

TECHNICAL SESSIONS VI - D			Tuesday, June 23 • 11:15 – 13:00
COMPLIANT MECHANISMS			
Room John Uicker			CHAIR Pier Paolo Valentini
Time	ID	Presenting Author	Title
11:15	35	Hussein Naddaf	High-precision multi-axis flexure-based compliant mechanism: predictive modelling and experimental validation Hussein Naddaf; Michael Gomez; Nicola Bailey
11:30	39	Zhuoran Li	Design, analysis, and experimental investigation of a novel wedge-type self-locking connection mechanism for aircraft opening covers Zhuoran Li; Shujun Chen; Jie Chen; Jing Zhao
11:45	89	Marco Cirelli	Higher-order kinematic analysis of compliant four-bar linkage: Theory and application to a flexible Roberts mechanism Marco Cirelli; Luca D'Angelo; Gabriele Alcamo; Pier Paolo Valentini
12:00	107	Matteo Verotti	Morphing of planar flexures Orazio Sorgonà; Luca Bruzzone; Oliviero Giannini; Matteo Verotti
12:15	136	Just Herder	Initially-curved variable-thickness flexures improve performance in compliant mechanisms, a straight-line generator example Flip Colin; Abdullah Yasir; Erwin Mulder; Just Herder
12:30	43	Vivien Plattl	Dynamic analysis of curved compliant mechanisms Vivien Plattl; Lena Zentner
12:45	9	Dung-An Wang	Kinetostatic modeling of a compliant honeycomb lattice Hoang Lam Pham; Quoc Huy Pham; Dung-An Wang
13:00 – 14:00			Lunch

TECHNICAL SESSIONS VII - A			Tuesday, June 23 • 14:00 – 15:30
ROTATING MACHINERY			
Room Azevedo Albuquerque			CHAIR Ibai Ulacia
Time	ID	Presenting Author	Title
14:00	10	Martin Eizmendi	Dynamic testing of four-point contact slewing bearings: A way to a method Martin Eizmendi; Iker Heras; Mikel Portilla; Josu Aguirrebeitia
14:15	110	Dennis Janssens	Non-intrusive quasi-static torque measurement in gearboxes using a housing-mounted fiber Bragg grating sensor Dennis Janssens; Sidney Goossens; Frank Naets
14:30	12	Rushen Deng	A coupled lubrication model for the valve plate pair in high-pressure aviation piston pumps considering spindle deformation Runlim Chen; Wenhui Li; Wenhao Chen; Rushen Deng; Jianning Gu; Tianzhao Wang; Jun Zha
14:45	37	Tobias Baumann	A novel finite element-based slice model for line contacts in rolling bearings Tobias Baumann; Daniel Singer; Till Budde; Stephan Tremmel
15:00	77	Mikel Portilla	On the friction torque in slewing bearings: Towards a new approach Mikel Portilla Gutierrez; Martin Eizmendi Saiz; Iker Heras Miguel; Josu Aguirrebeitia Celaya
15:15	172	Pello Alberdi	Optimizing ball bearing contact angle for minimum power loss under combined loads Pello Alberdi; Aitor Arana; Aitor Oyanguren; Jon Larrañaga; Ibai Ulacia

TECHNICAL SESSIONS VII - B			Tuesday, June 23 • 14:00 – 15:30
BIOMECHANICS			
Room Erskine Crossley			CHAIR Sérgio Gonçalves
Time	ID	Presenting Author	Title
14:00	2	Airi Hatsushiro	Comparative evaluation of machine learning methods for motion-related pain prediction in lumbar disc herniation patients Airi Hatsushiro; Yuta Tawaki; Toshiyuki Murakami; Teresa Zielinska
14:15	57	Manuel Romeo	Kinematics evaluation of a lower limb musculoskeletal model based on parallel mechanisms with in vivo measured data Manuel Romeo; Nicola Sancisi; Michele Conconi; Raphael Dumas
14:30	15	Domenico Mundo	On the use of a novel driving simulator for the assessment of upper limb impairment in post-stroke patients Francesca Alvaro; Mathjis Vivet; Michele Perrelli; Rocco Adduci; Domenico Mundo
14:45	48	Yerkebulan Nurgizat	Structural design and numerical simulation of a semi-active transfemoral knee prosthesis adapter Nursultan Zhetenbayev; Yerkebulan Nurgizat; Aidos Sultan; Didar Serik; Ussama Abujazar; Kassymbek Ozhikenov; Gani Sergazin
15:00	62	Nicola Sancisi	Evaluation of a two-dof mechanism to model the ankle complex Nicola Sancisi; Manuel Romeo; Raphael Dumas; Michele Conconi
15:15	182	Nuno Carmo	Biomechanical assessment of reclined occupant postures in automated vehicles using LS-DYNA simulations Nuno Carmo; Ana Martins; Marta Carvalho

TECHNICAL SESSIONS VII - C			Tuesday, June 23 • 14:00 – 15:30
MECHANISM AND MACHINE DESIGN			
Room Terry Shoup			CHAIR Maria Cristina Valigi
Time	ID	Presenting Author	Title
14:00	92	Victor Zhidchenko	Data-driven structural strain estimation for a forestry crane using LSTM and transformer networks Sohaib Mustafa Saeed; Victor Zhidchenko; Heikki Handroos
14:15	111	Pavel Zevzikov	Development of a prototype compressed-air generator using water hammer energy Pavel Zevzikov; Marijonas Bogdevicius
14:30	157	Jorge Francisco Aznar Ortega	Optimal design of a suspended parallel robot for wall plastering Jorge Francisco Aznar Ortega; Adrián Peidró Vidal; Paula Mollá Santamaría; Óscar Reinoso García
14:45	198	Larisa Rybak	Development and research of a multimodal robot with ground and aerial modes Larisa Rybak; Dmitry Malyshev; Vladislav Cherkasov
15:00	173	Hongfang Chen	Optimal measurement area identification and accuracy enhancement of a CMM based on IPSO-SAA Zishuai Wang; Zeru Lyu; Zhaoyao Shi; Hongfang Chen

TECHNICAL SESSIONS VII - D			Tuesday, June 23 • 14:00 – 15:30
ROBOTS AND MANIPULATORS			
Room John Uicker			CHAIR Yukio Takeda
Time	ID	Presenting Author	Title
14:00	160	Tan Sy Nguyen	A planar parallel robot with a remote-controlled orientable two-finger gripper Tan Sy Nguyen; Simon Foucault
14:15	108	Seniz Ertugrul	Design and experimental validation of an underactuated four-finger variable stiffness gripper with sensorless force estimation Ozan Kaya; Ertugrul Bayraktar; Seniz Ertugrul
14:30	24	Pier Paolo Valentini	Real-time prompt-based 3D object detection and pose kinematics for interactive cobot grasping Marco Cirelli; Luca D'Angelo; Pier Paolo Valentini
14:45	193	Angelos Iliakis	A compact SPS-based parallel mechanism for worm-like robot locomotion in confined environments Angelos Iliakis; George Nikolakopoulos; Panagiotis Koustoumpardis
15:00	-	-	-
15:15	51	Jie Wang	Follow-the-leader performance of a dual-ended spring-based self-extending continuum robot Jie Wang; Calvin S. H. Ng; Zheng Li

KEYNOTE LECTURE II		Tuesday, June 23 • 15:30 – 16:00
Room Azevedo Albuquerque		CHAIR Andrés Kecskeméthy
Time	Presenting Author	Title
15:30	Paulo Flores	60th Anniversary of Mechanism and Machine Theory

16:00 – 16:15	AWARDS AND CLOSING CEREMONY – Room Azevedo Albuquerque
19:00 – 23:00	BANQUET – Hilton Porto Gaia

POSTER SESSION		Permanent Exhibition
ID	Presenting Author	Title
4	Carlos Fernandes	Summit-counting method for statistical mixed-lubrication gear friction modeling Miguel Dias; Carlos Fernandes
11	Jernej Mlinarič	Transferable time-frequency representations for data-efficient end-of-line quality inspection of electric motors Jernej Mlinarič; Boštjan Pregelj; Gregor Dolanc
41	Yonghong Chen	Relative position error identification and compensation for dual-cone enveloping hourglass worm via SAO-BP neural network Zhenglin Yang; Yonghong Chen; Jin Gao; Chenyang Dou; Fei Liu; Wenjun Luo; Bingkui Chen
42	Yonghong Chen	Research on meshing performance investigations of the curve-constructed hourglass worm drive Jin Gao; Yonghong Chen; Zhengling Yang; Chenyang Dou; Fei Liu; Wenjun Luo; Bingkui Chen
78	Chenyang Dou	Error adaptability analysis on a novel point contact face worm gear drive based on geometric element Chenyang Dou; Yonghong Chen; Jin Gao; Zhenglin Yang; Fei Liu; Wenjun Luo; Bingkui Chen
90	Miroslaw Rucki	Application of digital twin in the control system for the zirconia-based ceramics electroconsolidation device Waldemar Samociuk; Edvin Hevorkian; Dmitrij Morozow; Leszek Chałko; Paweł Stączek; Miroslaw Rucki
95	Miroslaw Rucki	Additively manufactured cycloidal gears: Comparative analysis of three materials Krzysztof Olejarczyk; Marcin Wikło; Miroslaw Rucki; Artūras Kilikevičius
179	Yunge Zou	NVH-aware co-optimization of topology, parameter and control for distributed range-extended electric powertrains Yuxin Zhang; Yunge Zou; Xin Ye
181	Yunge Zou	Research on the design and optimization methodology of multi-mode multi-gear transmission architecture for electric vehicles based on graph theory Yunge Zou; Yuxin Zhang; Yantao Si
202	Leonor Guimarães	Design and optimisation of tilt-in-space wheelchair mechanism Leonor Guimarães; Mariana Rodrigues da Silva; Filipe Marques