

PROGRAMME ISIEA

Wednesday 19.06.2024

NOI Tech Park – Via Volta 13/A Bolzano

13:30 14:00	Registration Foyer		
14:00 14:30	Welcome Session ROOM 1		
14:30 15:30	Keynote speech ROOM 1 <i>"Current possibilities and future challenges to support the design process by simulation using the example of rolling bearing applications"</i> <u>Graf-Goller Oliver</u> Chair: Concli Franco		
15:30 16:00	Coffee Break Foyer		
16:00 18:00	Parallel Sessions ...		
	SEMINAR ROOM 1	SEMINAR ROOM 2	AUDITORIUM
	Life and Efficiency of Bearings Chair: Koch Oliver	Planning and Control of Robotic and Mechatronic Systems Chair: Richiedei Dario, Van Oosterwyck Nick	Artificial Intelligence in Manufacturing and Mechanical Engineering Chair: Borgianni Yuri
	101 - Predicting the behavior of spherical roller bearings with a detailed multi-body simulation model <u>Müller Jonathan Irenäus</u> & Koch Oliver	201 - Control, estimation and co-design of underactuated mechanical systems: own-review 2013-2023 <u>Bastos Guaraci</u>	301 - Artificial intelligence - Insights into the mechanics of biomaterials: Predicting the compressive load of composite sandwich structures Sheini Dashtgoli Danial, <u>Taghizadeh Seyedahmad</u> , Macconi Lorenzo, Concli Franco
	102 - Flows in oil-bath lubricated tapered roller bearings: CFD simulations validated via PIV <u>Maccioni Lorenzo</u> & Concli Franco	202 - A collaborative robotics application for the assembly of car rear lamps <u>Scalera Lorenzo</u> , Lozer Federico, Geerinck Julie, Breda Andreas, Totis Francesco, Polo Fabio, Giusti Andrea, Gasparetto Alessandro	302 - Estimating Colebrook-White friction factor using tree-based machine learning models Niazkar Majid, <u>Menapace Andrea</u> , Righetti Maurizio
	103 - Spherical bearing with tapered hourglass rolling elements for planetary reduction stage applications Podda Daniele, Pisani Paolo, Cao Lijun, Sartori Sergio, Scaltritti Diego, Clauvelin Jean-Philippe	203 - An Excel motion profile optimization (MoPO) tool for industrial positioning applications <u>Van Oosterwyck Nick</u> , Maes Brecht, De Laet Robbe, Derammelaere Stijn	303 - Integrated approach for continuous improvement of robotic garments picking Pini Fabio, Kähler Olaf, Uray Martina, Llagostera Eugeni, Biagiotti Luigi, Leali Francesco

16:00 18:00	... Parallel Sessions		
	SEMINAR ROOM 1	SEMINAR ROOM 2	AUDITORIUM
	104 - Experimental comparison of hydrostatic bearing pad geometry optimization approaches under static conditions <u>Michalec Michal</u> , Foltýn Jan, Svoboda Petr, Křupka Ivan, Hartl Martin	204 - Inverse dynamics for feedforward control of an underactuated 6-DOF gantry crane Bettega Jason, Fabris Francesco, <u>Richiedei Dario</u> , Tamellin Iacopo, Alberto Trevisani	304 - Automated visual inspection via differentiable physically-based rendering under unknown illumination <u>Caruso Emanuele</u> , Casarin Sofia, Pfund Thomas, Schupp Florian, Lanz Oswald
	105 - The influence of measurement uncertainties and input parameters on hydrostatic bearing performance: analytical, experimental, and numerical comparison Foltýn Jan, Maccioni Lorenzo, <u>Michalec Michal</u> , Concli Franco, Svoboda Petr	205 - Chattering-free sliding mode control for position and attitude tracking of a quadrotor <u>Gomiero Sara</u> & von Ellenrieder Karl	305 - Egocentric video-based human action recognition in industrial environments <u>Bianchi Edoardo</u> & Lanz Oswald
18:00 19:30	106 - Decoupled Sliding-Mode Control for active magnetic Bearings using Particle Swarm Parameter Optimisation <u>Vennemann Jonah</u> , König Niklas, Nienhaus Matthias	206 - Adaptive vibration absorption using Internal Model Control approach Duarte André J J, Araújo José M, Santos Tito L, <u>Richiedei Dario</u> , Tamellin Iacopo	
	Aperitif Foyer		

PROGRAMME ISIEA

Thursday, 20.06.2024

NOI Tech Park – Via Volta 13/A Bolzano

8:30 10:10	Parallel Sessions		
	SEMINAR ROOM 1	SEMINAR ROOM 2	AUDITORIUM
	Cycloidal Speed Reducers Chair: Blagojevic Mirko	Mobile Field Robotics: Recent Achievements in the Aerial, Ground and Marine Domains Chair: von Ellenrieder Karl	Advancements in Aerospace Technologies Chair: Chernoray Valery G.
	107 - Torque-to-weight: driving the next electrification wave <u>Lopez Garcia Pablo</u> , Khorasani Amin, Verstraten Tom	207 - High Order CBFs for the Safety- critical Control of Coaxial Octorotor UAVs <u>Mahmoudabadi Parvin</u> , von Ellenrieder Karl, Moroder Matthias, Moroder Moritz	307 - Research Perspectives for the Near- and Far-future Development of Civil Aviation <u>Chernoray, Valery</u>
	108 - Finite element investigation of torque ripple in roller-cycloidal contact: examining gear ratio, mesh density, and transmitted power dependencies <u>Fraccaroli Lorenzo</u> , Maccioni Lorenzo, Concli Franco, Blagojevic Mirko, Rotini Federico	208 - Design and development of an autonomous surface vehicle for supporting underwater navigation Boccalini Lorenzo, <u>Cavaliere Chiara</u> , Costanzi Riccardo, Di Lorenzo Giovanni, Guerci Matteo, Lisi Michele, Pollini Lorenzo, Ruscio Francesco, Ryals Andrea Dan, Tani Simone	308 - The role of advanced experimental methods in aerodynamic evaluation of state-of-the-art turbofan engine components <u>Vikhorev Valentin Vadimovich</u>
	109 - Loads in the planetary-pinion gear with modification of the tooth profile and eccentricity of the satellites Tchufistov E.A., Tchufistov O.E., <u>Blagojevic Mirko</u>	209 - Local path-planning optimisation for an industrial Autonomous Mobile Robot via dynamic obstacle detection <u>Cecchi Lorenzo</u> , Bucci Alessandro, Topini Alberto, Ridolfi Alessandro, Bonacchi Luigi Bono	309 - The use of Infrared thermography in Advanced Experimental Investigations of State-of-the-art Turbofan Engine Components <u>Jonsson Isak</u>
	110 - The influence of thermal stresses on the load distribution in cycloidal reducers <u>Blagojevic Mirko</u> , Vasic Milan, Dizdar Samir, Tuka Smajo, Josimovic Milos	210 - Towards robotic pose graph estimation with tree landmarks in perennial orchards <u>Chang Michael</u> & Camurri Marco	310 - Helicopter drive system featuring additive-manufactured components <u>Alari Lorenzo</u> , Sartori Sergio, Montagna Federico, Pisani Paolo, Borlin Nicola, Scaltritti, Diego
		211 - A control barrier function based approach for close inspection with USVs <u>von Ellenrieder Karl</u> & Camurri Marco	311 - On and offboard technologies for autonomous UAMs in urban emergency response roles <u>Rodriguez Acero Patxi Daniel</u>

10:10 10:30	Poster Session Foyer		
	P01 - A novel concept of nested cycloidal drive <u>Maccioni Lorenzo</u> & Concli Franco		
	P02 - Influence of geometric deviations in rollers and cycloidal disk on power transmission performances <u>Rotini Federico</u>		
	P03 - Model based prediction of optimal ropeways for material transport <u>Wenin Markus Josef</u> , Patreider Moritz, Brunner Johannes		
10:30 10:50	P04 - Study and optimization of main bearing lubrication system of a direct-drive leitwind wind turbine <u>Ishaq Khan Muhammad</u> , Maccioni Lorenzo, Concli Franco		
	Coffee Break Foyer		
10:50 12:10	Parallel Sessions		
	SEMINAR ROOM 1 Powertrains Chair: Gorla Carlo	SEMINAR ROOM 2 Applied Mechanics and Robotics Chair: Scalera Lorenzo	AUDITORIUM Innovative Engineering Education Part A Chair: Woschank Manuel
	112 - Multibody Simulation of Gearbox Dynamics using 3D Contact Modeling and measured Tooth Geometries <u>Grünberger Jürgen</u> , Steiner Wolfgang, Witteveen Wolfgang	212 - Development of a mechanical device to harvest energy from marine waves <u>Mura Andrea</u>	312 - Technology in engineering education: the sustainable enterprise business game <u>Fontanella Sabrina</u> , Fraccascia Luca, Nonino Fabio, Baldissin Nicola
	113 - Modifications of a Back-to-back Geared Test Rig for a State-of-the-art Analysis of Its Oil Flows <u>Bonaiti Luca</u> , Gorla Carlo	213 - Enhancing snowboard design for ollie performance through multibody system dynamics and genetic optimization <u>Huber Xaver</u> , Zwölfer Andreas, Caillaud Benoit, Rixen Daniel J.	313 - The certification of an entrepreneurship competence during an interfaculty business challenge <u>Morselli Daniele</u> , Luppi Elena, Ricci Aurora, Parricchi Monica
	114 - Advances in spline couplings testing <u>Mura Andrea</u> , Curà Francesca	214 - Redundant Hybrid Robots for resilience in future smart factories Manzardo Matteo, <u>Yan Yicheng</u> , Rojas Rafael Angel, Shahidi Amir, Vidoni Renato, Hüsing Mathias, Corves Burkhard	314 - Criticism and proposal of a model for the design and rapid set-up of a training course based on 3D printing <u>Scibilia Sergio</u> & Casalino Giuseppe
	115 - Performance Analysis of a Micro Gas Turbine Fed by Ammonia as Fuel with Steam Injection <u>Fatehi Mohsen</u> , Campaldini Graziano, Renzi Massimiliano	215 - Methods for high performance phase change actuation <u>Fonseca Diogo</u> , Neto Pedro	315 - A Unity3D-based interactive educational game of compressed air system maintenance Isik Birkan, <u>Emir Isik Gulbahar</u> , Zilka Miroslav

12:10 13:50	Lunch Foyer		
13:50 14:40	Keynote speech ROOM 1 <i>"Past, Current and Future Research Topics in Robotics at IGMR, RWTH Aachen University"</i> <u>Corves Burkhard</u> Chair: Vidoni Renato		
14:40 15:40	Parallel Sessions		
	SEMINAR ROOM 1 Multi-physics Modeling Approaches for the Simulation of New Generation Propulsion Systems Chair: Della Torre Augusto	SEMINAR ROOM 2 Modelling and Simulations Chair: Vidoni Renato	AUDITORIUM Innovative Engineering Education Part B Chair: Molinaro Margherita
	116 - Development and Application of a CFD Framework for the Simulation of Fully Coupled Electromagnetic and Heat Transfer Process Inside Electric Motors <u>Montenegro Gianluca</u>, Della Torre Augusto, Zamboni Rachele	216 - Overview of the analysis and testing of a covering system for a telescope <u>Dinardo Francesco</u>, Tomasi Matteo, Bursi Alessandro, Vignotto Davide, Dalla Ricca Edoardo, Giacomazzo Matteo, Bortoluzzi Daniele	316 - The role of Nordic entrepreneurship education for technical education <u>Schild Katharina</u> & Morselli Daniele
	117 - A detailed CFD model for the channel-scale analysis of PEM fuel cells: application and validation considering different distributor layouts <u>Bulgarini Margherita</u>, Della Torre Augusto, Baricci Andrea, Grimaldi Amedeo, Montenegro Gianluca, Marocco Luca, Mereu Riccardo	217 - Shape sensing and damage identification with iFEM on a double bottom structure of a containership <u>Bardiani Jacopo</u>, Manes Andrea, Giglio Marco, Sbarufatti Claudio	317 - Data Spaces for Leading Future Innovation Processes <u>Pichler Rudolf</u> & Schellander Martin
	118 - A multiphysics CFD framework for the simulation of automotive advanced after-treatment systems equipped with heating devices Della Torre Augusto, Barillari Loris, Sartirana Andrea, Montenegro Gianluca	218 - Validation of a wheelset finite element model for static structural analysis and inverse force identification <u>Bellacci Giovanni</u>, Pugi Luca, Baldanzini Niccolò	318 - Blended Intensive Programmes as effective and innovative solutions to train the engineers of the future <u>Molinaro Margherita</u>, Orzes Guido, Borgianni Yuri
15:40 16:10	Coffee Break Foyer		

16:10 18:10	Parallel Sessions		
	SEMINAR ROOM 1	SEMINAR ROOM 2	AUDITORIUM
	Tribology and Materials Chair: De Pasquale Giorgio, Montenegro Gianluca	Formulations and Applications of Structural and Multibody Dynamics Chair: Gerstmayr Johannes, Gufler Veit	SME 5.0 – Intelligent, Sustainable and Human-Centred SMEs Part A Chair: Baalsrud Hauge Jannicke
	119 - CFD insights into gear jet lubrication: exploring objectives, challenges, and methodologies through a literature review Maccioni Lorenzo, Pagliari Lorenzo, Concli Franco	219 - Improving the Accuracy of the Floating Frame of Reference Formulation for Rotordynamics Applications Holzinger Stefan, Zwölfer Andreas, Trainotti Francesco, Gerstmayr Johannes	319 - Industry 5.0 and SMEs future work competency fields: A literature review <u>Zare Leila</u> , Ben Ali Marwa, Rauch Erwin
	120 - Simulation of the churning losses of ordinary gears: Lagrangian Smooth Particle Hydrodynamics approach <u>Della Torre Augusto</u> & Concli Franco	220 - An objective FE-formulation for Cosserat rods based on the spherical Bézier interpolation <u>Greco Leopoldo</u> , Cammarata Alessandro, Castello Domenico, Cuomo Massimo	320 - The influence of digital transition and industry 5.0 on the success of implementing LARGS paradigms: Exploring European SMEs Challenges <u>Baalsrud Hauge Jannicke</u> , Zemke Chavez Zuhara, Eshetu Birkie Seyoum, Chengo Kei Sam
	121 - Simulation of the lubrication of high-speed jet-lubricated gears: study of the impact of the oil droplet suspension on the power losses Concli Franco & <u>Della Torre Augusto</u>	221 - Use of lumped mass formulation in the design sensitivity analysis of flexible multibody dynamics <u>Gufler Veit</u> , Wehrle Erich, Vidoni Renato	321 - Enablers, barriers, and opportunities for the implementation of circular economy practices in small and medium-sized enterprises: An explorative systematic literature review <u>Olipp Nadine</u> , Woschank Manuel, Kopeinig Jacob
	122 - SiToLub - Simulation Tools for the design of safe and sustainable Lubricants <u>Don Davide</u> , Notarfrancesco Sarah, Pisarova Lucia, Moncho Salvador, Hoffmann Jonas, Borrás Xavier	222 - Surrogate mechanical model for programmable structures <u>Pieber Michael</u> , Zhang Zhaowei, Manzl Peter, Gerstmayr Johannes	322 - The application of Collective System Design to develop and improve Small and Medium Enterprises Xu Di, Reich Matt, <u>Cochran David S</u>
	123 - Digital twin of a tribology test bench: The adjoint gradient computation for parameter identification <u>Nachbagauer Karin</u> , Eichmeir Philipp, Jech Martin, Vorlaufer Georg	223 - Deep learning enhanced surrogate models for multibody system dynamics <u>Manzl Peter</u> , Humer Alexander, Gerstmayr Johannes	323 - Application of Industry 4.0 Technologies for Transparency of Sustainability Data in Multi-Tiered Manufacturing Supply Chains <u>Kopeinig Jacob</u> & Woschank Manuel
	124 - Ice Adhesion Research in Trentino-Alto Adige <u>Parin Riccardo</u> , Di Novo Nicolò, Bagolini Alvisè, Pugno Nicola	224 - Vibrations of an inclined cable with lumped mass <u>Patreider Moritz</u> , Wenin Markus, Furtmüller Thomas, Adam Christoph	324 - Artificial intelligence in small and medium enterprises: requirements and barriers Salimbeni Sergio & <u>Grünbichler Rudolf</u>
18:10 19:30	Break		
19:30 22:00	Gala Dinner		

PROGRAMME ISIEA

Friday, 21.06.2024

NOI Tech Park – Via Volta 13/A Bolzano

8:40 10:20	Parallel Sessions	
	SEMINAR ROOM 1 Material Characterization, Fatigue & Wear Chair: Mura Andrea	SEMINAR ROOM 2 SME 5.0 – Intelligent, Sustainable and Human-Centred SMEs Part B Chair: Rauch Erwin
	125 - Multi-material fittings with carbon fiber reinforcement from AM process: design and characterization De Pasquale Giorgio, <u>Ursi Ferdinando</u>	225 - A qualitative study exploring maintenance policies of compressed air systems in production <u>Isik Birkan</u> , Zilka Miroslav
	126 - Characterization of compressive behavior of novel bio-inspired additively manufactured composite sandwich structures <u>Taghizadeh Seyedahmad</u> , Macconi Lorenzo, Concli Franco	226 - Sustainability assessment: a complex many-objective multi-agent multidisciplinary problem <u>Bataleblu Ali Asghar</u> , Rauch Erwin, Cochran David S
	127 - Comparison of low-cycle fatigue criteria for the life prediction of AISI 316L <u>Pagliari Lorenzo</u> , Fraccaroli Lorenzo, Maccioni Lorenzo, Concli Franco	227 - The influence of electric vehicle technologies on environmental sustainability in industrial reporting: A bibliometric study <u>Ben Ali Marwa</u> & Rauch Erwin
	128 - Molecular dynamics simulation of fatigue crack propagation in single crystal Aluminum under cyclic loading Silani Mohammad, <u>Pagliari Lorenzo</u> , Concli Franco	228 - Sustainable aspects of intermodal transport: A systematic literature review on the current state <u>Hoffelner Mario</u> , Woschank Manuel, Jöbstl Lara
	129 - Presentation of Associazione italiana costruttori organi di trasmissione e ingranaggi (ASSIOT) Federtec <u>Sartori Sergio</u>	229 - Multi-objective modeling of additively manufactured bio- composite based on support vector machine regression <u>Contuzzi Nicola</u> , Morvayova Alexandra, Casalino Giuseppe
10:20 10:50	Coffee Break Foyer	

10:50 12:10	Parallel Sessions	
	SEMINAR ROOM 1 Infrared Thermography for Industrial Applications Chair: Curà Francesca Maria	SEMINAR ROOM 2 Innovative Solutions for Safer and More Sustainable Mobility Chair: Pugi Luca
	130 - Experimental and numerical wear characterization by means of Active Thermography technique Curà Francesca Maria, <u>Corsaro Luca</u> , Goti Edoardo	230 - Zero-emission heavy-duty trucks in logistics: a systematic review and analysis of relevant adoption parameters <u>Roman Giacomo</u> , Zadek Hartmut
	131 - Active thermography for residual stresses identification in gears <u>Corsaro Luca</u> , Curà Francesca, Sesana Raffaella	231 - Study on energy efficiency of an electrified railway line <u>Kociu Aljon</u> , Berzi Lorenzo, Delogu Massimo, Bartemucci Lorenzo, Pugi, Luca
	132 - Directional thermal diffusivity of additive manufactured thin sheets Sesana Raffaella, <u>Santoro Luca</u> , Quercio Michele, Canova Aldo, Aiello Alex	232 - Planning of smart charging infrastructure for electric vehicles: an italian case study <u>Innocenti Eleonora</u> , Berzi Lorenzo, Kociu Aljon, Pugi Luca, Delogu Massimo
	133 - Induction thermography for surface crack detection during motion tests <u>D'Accardi Ester</u> , Dell'Avvocato Giuseppe, Palumbo Davide, Galietti Umberto	233 - Preliminary Design and Simulation of a Return Current Collector for an Innovative Trambus System Alessandrini Adriano, Ortenzi Fernando, Cignini Fabio, Gulino Michelangelo Santo, Franci Michael, Berzi Lorenzo, Zazzeri Francesco, <u>Pugi Luca</u>
12:10 13:00	Closing Session and Awards ROOM 1	
13:00 14:30	Lunch Foyer	