

**TUESDAY 24.09.2024**

**Palazzo Garzolini di Toppo Wassermann**

18:30 20:30

welcome aperitif & registration

**WEDNESDAY 25.09.2024**

**Castle - Salone del Parlamento**

**Casa della Contadinanza - 1<sup>st</sup> floor**

**Castle - Sala 8**

08:00 08:45

Registration / Castle - main entrance

08:45 09:00

opening - chairs Breda, Vermiglio / Castle - Salone del Parlamento

09:00 10:00

plenary 1 – **Sabine Mondié** “Lyapunov stability tests for linear time-delay systems” – chairs Michiels, Vermiglio / Castle - Salone del Parlamento

10:00 10:30

coffee break / Casa della Contadinanza - garden/ground floor

10:30 10:50

invited session 1 <b>Delay equations in biology</b> chairs Scarabel, Ruschel	47	Campbell, Sue Ann	Distributed Time Delays and Desynchronization in a Neural Field Model	invited session 2 <b>Manufacturing systems</b> chairs Totis, Bachrathy	46	Totis, Giovanni	Design of a Universal Dynamometer for Cutting Force Measurement in Robotic Milling	regular session 1 <b>Stability analysis and methods</b> chairs Mironchenko, Boussaada	14	Mironchenko, Andrii	Criteria for input-to-state stability of time-delay systems	
	10:50 11:10	40	Wedgwood, Kyle		Dynamics and Memories in Neuronal Models with Delayed Autapses Exhibiting Short-Term Plasticity	91	Stépán, Gábor		Chatter Testing of Variable Pitch Milling Tools in Hardware-In-The-Loop Environment	17	Zhang, Li	Sampled-Data Stabilization of Coupled Nonlinear Fractional Order Reaction-Advection-Diffusion Systems with Time-Varying Delays
	11:10 11:30	38	De Reggi, Simone		Reproduction Numbers and How to Approximate Them: A General Numerical Method for Age-Structured Models	69	Fodor, Gergő		Mean Square Direct Integration of Stochastic Turning Models	97	Sipahi, Rifat	Stability of an LTI SIS Epidemic Network with a Local and a Global Delay
	11:30 11:50	56	Polner, Mónika		Dynamics of a Delay Differential SEIR Model with Test, Trace, Isolate	53	Totis, Giovanni		A Novel Non-Linear Model of Tool-Workpiece Interaction for a More Accurate Chatter Prediction in Peripheral Milling	74	Ueda, Yoshihiro	Stability Analysis for the Viscous Burgers Equation with Delay
	11:50 12:10	92	Röst, Gergely		Asymptotic stability and divergence for non-autonomous linear delay differential equations	90	Bachrathy, Dániel		Linear Time Stability and Fixed Point Calculation for Delayed System - Application of SSV Turning Models	27	Katz, Rami	Exponential Stability Conditions for Multiscale Linear Systems Subject to Fast-Varying Periodic Delays
	12:10 12:30	25	Spek, Len		Hopf Bifurcations of Two Population Neural Fields on the Sphere with Diffusion and Distributed Delays	100	Kiss, Adam K.		Robustness of the Fitted Floquet Multipliers for Measured Signals in Timeperiodic Milling Processes	106	Sipahi, Rifat	Jacobian Discriminant Approach to Characterize Stability Switching Curves of LTI Systems with Two Delays

12:30 14:00

lunch / Casa della Contadinanza - garden/ground floor

14:00 14:20

invited session 3 <b>Characterization and study of spectral methods for LTI time delay systems</b> chairs Schmoderer, Torres-García	15	Mondié, Sabine	Design of Delay-Based Proportional Integral Controllers ( $\delta$ -PI) for Second-Order LTI Systems	regular session 2 <b>Robust and predictor-based control with applications</b> chairs Verriest, Nikiforov	1	Diapa, Marek	Simple Robust Controller Via Evolutionary Mu-Synthesis Using Algebraic Approach for Oscillating Plant with Uncertain Time Delay and Astatism	tutorial session 1 <b>Software tools for delay equations 1</b> chairs Andó, Vyhldal	34	Brabec, Michal	PID Hinf Designer: Tool for Analytical Design of a Wide Class of Controllers with Two Tunable Parameters by Hinf Specifications	
	14:20 14:40	21	Akbarisai, Sanaz		Controller Design for Systems Governed by Time-Periodic Delay Differential Equations: An Eigenvalue Optimization Approach	28	Nikiforov, Vladimir O.		Safe Implementation of the Robust State Predictor for Unstable LTI Systems with Input Delay	55	Liessi, Davide	Numerical Bifurcation Analysis of Delay Equations: An Extension of MatCont's Graphical Interface
	14:40 15:00	33	Sigalotti, Mario		Criteria for Approximate and Exact Controllability of Linear Difference Delay Equations	48	Sotomayor Moriano, Javier		Adaptive Smith Predictor Controller Design for Industrial Processes with Time Varying Time Delay			
	15:00 15:20	62	Boussaada, Islam		Iterated Integral Representation for the Characteristic Equation of Time-Delay Systems with Roots of Maximal Multiplicity	58	Sonzogni, Giulia		An Explicit Expression of the Steady-State Error in Smith Predictor Applied to Linear Systems with Integral Action			
	15:20 15:40	66	Torres-García, Diego		Insights into the Stabilization of a Chain of Integrators Via Delay-Difference Approximations	99	Ergenç, Ali Fuat		Self-Tuning Digital PIR Controller Design and Application			
	15:40 16:00	77	Schmoderer, Timothée		Further Insights on the Partial Pole Placement in Delay Systems: Simultaneity of the MID and CRRID Properties	61	Verriest, Erik I.		Implicit State-Dependent Delay in Gravitational Physics of Fission			

16:00 16:30

coffee break / Casa della Contadinanza - garden/ground floor

16:30 17:30

TC2.2 meeting – chair Zattoni, co-chair Orosz / Castle - Salone del Parlamento

**historic center of Udine**

18:00 19:30

guided tour

**THURSDAY 26.09.2024**

		<b>Castle - Salone del Parlamento</b>			<b>Casa della Contadinanza - 1<sup>st</sup> floor</b>			<b>Castle - Sala 8</b>		
08:30	09:00	Registration / Castle – main entrance								
09:00	10:00	plenary 2 – <b>Bernd Krauskopf</b> “Bifurcation analysis of systems with delays: what can it do for you?” – chairs Vyhliđal, Pepe / Castle – Salone del Parlamento								
10:00	10:30	coffee break / Casa della Contadinanza – garden/ground floor								
10:30	10:50	invited session 4 <b>Vehicle dynamics and control</b> chairs Szaksz, Horváth	32 Orosz, Gabor	Remote Driving with Delay on Curvy Roads	regular session 3 <b>Stabilizing controllers and design</b> chairs Zattoni, Bonnet	29 Di Ferdinando, Mario	Sampled-Data Safe Stabilization of Nonlinear Time-Delay Systems	tutorial session 2 <b>Software tools for delay equations 2</b> chairs Liessi, Brabec	36 Michiels, Wim	Analysis and design of fixed-order controllers using TDS-CONTROL
10:50	11:10		43 Ji, Xunbi	Act-And-Wait Strategy for Mitigating the Effect of Latency in Remote Driving		42 Bonnet, Catherine	Implementation of Stabilizing Controllers for Retarded Delay Systems			
11:10	11:30		49 Szaksz, Bence	Reduction to Spectral Submanifolds in Guided Car-Following with Time Delay		75 Sassi, Ahlem	Observer-Based Controller Design for LTI SISO Systems with Feedback Delay. a Partial Pole Placement Approach			
11:30	11:50		39 Previati, Giorgio	Time Delay Effects on Vehicle-And-Driver Stability		84 Zattoni, Elena	A Class of Reset Linear Systems: The Reset-Delayed Linear Systems and Their Structural and Stability Properties			
11:50	12:10		50 Horváth, Hanna Zsófia	Stabilizing E-Scooters at Zero Speed with Feedback Control		87 Michiels, Wim	Stable H-Inf Controller Design for Retarded Time-Delay Systems: Optimization-Based Approach			
12:10	12:30		60 Mihályi, Levente	Effect of Time Delay on the Stability of Reversing Semitrailer		89 Sipahi, Rifat	Design of Delay-Based Controllers under Unintentional Delays			
12:30	14:00	lunch / Casa della Contadinanza – garden/ground floor								
14:00	14:20	invited session 5 <b>Data-driven dynamics and control</b> chairs Orosz, Ji	23 Ji, Xunbi	Single Trajectory Learning for Time Delay Systems	invited session 6 <b>Control of Multi-Agent Systems with time delays: theory and applications</b> chairs Caiazzo, Molnár	18 Caiazzo, Bianca	Signed Average Consensus in Cooperative-Antagonistic Multi-Agent Systems with Multiple Communication Time-Varying Delays	invited session 7 <b>PI(D) type control in application to time delay systems</b> chairs Fišer, Pepe	22 Cvejn, Jan	The Magnitude-Optimum Design of the PI Controller for Plants with Dead Time and Oscillatory Modes
14:20	14:40		54 Röhm, André	Folded-In-Time Deep Neural Networks: Multi-Delay Systems and Their Equivalence to Multi-Layer Perceptrons by Gradient Descent or Optimal Control		16 Develer, Ümit	Group Consensus for Continuous-Time Multi-Agent Networks with Time Delays		45 Fišer, Jaromir	Generalized Dominant Three-Pole Placement for Higher-Order Systems with Input Delay
14:40	15:00		57 Katz, Rami	Data-Driven Delay Estimation in Reaction-Diffusion Systems Via Exponential Fitting		19 Caiazzo, Bianca	Exponential Voltage Regulation in Islanded Microgrids Over Uncertain Communication Links and Heterogeneous Time-Delays		78 Bártfai, András	Semi-Analytical Method Applied to the Single Degree of Freedom Undamped Delayed Oscillator with Time Varying Parameters
15:00	15:20		63 Tanveer, Muhammad	Sparse Identification of Time Delay Systems Via Pseudospectral Collocation		20 Molnár, Tamás G.	Mitigating Phantom Jams by Connected Automated Vehicles in Mixed Traffic		24 Castorena Minor, Hugo David	Critical Depth of Cut in Turning Processes: Time and Frequency Domain Approaches
15:20	15:40		79 Kőpeczi-Bócz, Ákos Tamás	System Identification with SINDy in Presence of Time-Delay		70 de Haan, Redmer	Platooning of Heterogeneous Vehicles with Actuation Delays: Experimental Results		59 Alexandrova, Irina	Discretization of Functionals with Prescribed Derivative for Neutral-Type Systems
15:40	16:10		coffee break / Casa della Contadinanza – garden/ground floor							
16:10	16:30	regular session 4 <b>Vibration control</b> chairs Niculescu, Kojima	35 Rásvan, Vladimir	Pointwise Damping and Time Delay in the Stabilization of a Mechanical System	regular session 5 <b>Modeling and adaptive control</b> chairs Diblík, Ergenç	26 Diblík, Josef	Exact Solutions of Weakly Delayed Planar Linear Differential Systems with Constant Coefficients	regular session 6 <b>Nonlinear delayed dynamics</b> chairs Stépán, Kádár	52 Kádár, Fanni	Fold Prediction for Delay Differential Algebraic System of Valve Dynamics
16:30	16:50		51 Kojima, Akira	Characterization of Bounded Real Lemma for Commensurate Delay Systems		37 Nikiforov, Vladimir O.	Almost Finite-time Adaptive Compensation of External Disturbances in LTI Systems with Input Delay		71 Szaksz, Bence	Iterative Algorithm for Dynamical Integrity Assessment in Nonlinear Time Delay Systems
16:50	17:10		72 Tliba, Sami	Transverse Vibration Midpoint Control of an Elastic String Via an Autoregressive Control		76 Dombovari, Zoltan	State Dependent Delay Modelling of a Boring Bar Subjected to Bending and Torsion		73 Ponomarev, Anton	Invariant Sets of a Nonlinear Oscillator with Delayed Restoring Force: Comparison System Approach
17:10	17:30		85 Vyhliđal, Tomáš	Repetitive Control: Concept, Limitations, Potential		102 Ergenç, Ali Fuat	Validation of Delayed Anesthesia Model Using Identification Methods and Correlation Analysis		104 Verriest, Erik I.	Effects of Impulsive Control in Systems with Delay
		<b>Villa de Claricini Dornpacher</b>								
18:45	00:00	social banquet								

**FRIDAY 27.09.2024**

	<b>Castle - Salone del Parlamento</b>		<b>Casa della Contadinanza - 1<sup>st</sup> floor</b>		<b>Castle - Sala 8</b>				
08:30 09:00	Registration / Castle – main entrance								
09:00 10:00	plenary 3 – <b>Li Zhang</b> “Exploring delayed dynamics and control strategies of human balancing” – chairs Orosz, Niculescu / Castle – Salone del Parlamento								
10:00 10:30	coffee break / Casa della Contadinanza – garden/ground floor								
10:30 10:50	invited session 8 <b>Recent advances in the numerical treatment of time delay systems</b> chairs Sipahi, Maset	30 Provoost, Evert	The Lanczos Tau Framework for Time-Delay Systems	invited session 9 <b>Recent development of Delayed Resonator - methods and applications</b> chairs Gao, Bušek	64 Saldanha, Adrian	Delayed Dynamic-Feedback Controller Design for Multi-Frequency Vibration Suppression	regular session 7 <b>Lyapunov based control and stability</b> chairs Egorov, Scholl	13 Mironchenko, Andrii	Towards ISS Lyapunov-Krasovskii Theory with Point-Wise Dissipation
10:50 11:10		31 Scarabel, Francesca	Numerical Stability and Bifurcation Analysis of Equations with Infinite Delay		94 Gao, Qingbin	Fractional-Order Delayed Resonator with Order Scheduling		44 Gómez, Marco Antonio	A Lyapunov-Krasovskii Based Approach to Observability and Detectability of Linear Time-Delay Systems
11:10 11:30		41 Andò, Alessia	Exponential Time Integration for Delay Differential Equations Via Pseudospectral Discretization		93 Šika, Zbyněk	Compact Active Absorbers with Many Degrees of Freedom Using the Delayed Resonator Concept		83 Scholl, Tessina H.	Lyapunov-Krasovskii Functionals of Robust Type and Their Legendre-Tau-Based Approximation
11:30 11:50		67 Peichl, Adam	QPmR Quasi-Polynomial Root-Finder: Update and Improvements		68 Kuře, Matěj	Delayed Resonator Design and System Structural Optimization towards Efficient Non-Collocated Vibration Absorption		103 Egorov, Alexey	From Exponential to Polynomial Complexity in the Lyapunov Stability Test
11:50 12:10		86 Maset, Stefano	Long-Time Relative Error of Linear DDEs Solutions with Perturbed Initial Data		95 Gao, Qingbin	Expanding the Low-Frequency Bandwidth of Delayed Resonators Using Quasi-Zero-Stiffness Structures			
12:15 12:45	invited closing talk – <b>Nicola Guglielmi</b> “Fifty years of numerical analysis of delay differential equations” – chairs Vermiglio, Maset / Castle – Salone del Parlamento								
12:45 13:00	closing – chairs Breda, Vermiglio / Castle – Salone del Parlamento								
13:00 14:30	lunch / Casa della Contadinanza – garden/ground floor								