



INTERNATIONAL FEDERATION
OF AUTOMATIC CONTROL



Turkish National Committee for Automatic Control



SSSC2016 & TDS2016

6th IFAC SYMPOSIUM ON SYSTEM STRUCTURE AND CONTROL &
13th IFAC WORKSHOP ON TIME DELAY SYSTEMS

— *June 22 - 24, 2016 • Istanbul - Turkey* —

Final program

Wednesday June 22, 2016 - morning

	SSSC (ROOM 131)	TDS (ROOM 127)
8:40 – 9:15	<i>Registration</i>	
9:15 – 9:30	<i>Opening (ROOM 127)</i>	
	<i>Special session in memoriam Uwe Helmke</i> Chair: G. Conte	
9:30 – 10:00	Uwe Helmke and his legacy Control and Interpolation; Paul Fuhrmann	
10:00 – 10:30	Delayed Resource Allocation Optimization with Applications in Population Dynamics; Erik I. Verriest, Gunther Dirr, Uwe R. Helmke	
10:30 – 11:00	Coffee Break	
	Control and observation problems Chair: Taha Boukhobza	Modelling, identification and observation Chair: Serkan Gugercin, Co-chair: Nusret Tan
11:00 – 11:20	Disturbance Decoupling with Stability for Linear Impulsive Systems; Anna Maria Perdon, Elena Zattoni, Giuseppe Conte	H_2-optimality conditions for reduced time-delay systems of dimension one; Igor Pontes Duff Pereira, Serkan Gugercin, Christopher A. Beattie, Charles Pousset -Vassal, Cédric Seren
11:20 – 11:40	Parametric Identification of Hybrid Linear-Time-Periodic Systems; Ismail Uyanik, Uluc Saranlı, Omer Morgul, Mustafa Mert Ankarali	A Model Identification Method for Tuning of PID Controller in a Smith Predictor Structure; Furkan Nur Deniz, Nusret Tan
11:40 – 12:00	Improved 3D trajectory tracking by Nonlinear Internal Model-Feedback linearization control strategy for autonomous systems; Yasser Bouzid, Houria Siguerdidjane, Yasmina Bestaoui	An Optimal Two Stage Identification Algorithm for Discrete Hammerstein Time Delay Systems; Asma Atitallah, Saïda Bedoui, Kamel Abderrahim
12:00 – 12:20	Graphical characterization of the set of all flat outputs for structured linear discrete-time systems; Taha Boukhobza, Gilles Millerioux	Design of a functional adaptive observer for bilinear delayed systems; Ahlem Sassi, Harouna Souley Ali, Saïda Bedoui, Kamel Abderrahim, Michel Zasadzinski
12:20 – 13:40	<i>Lunch Break</i>	

Wednesday June 22, 2016 - afternoon

	SSSC (ROOM 131)	TDS (ROOM 127)
	Applications <i>Chair:</i> Paul Ronald Robert van Nooijen	Nonlinear and sampled data systems <i>Chair:</i> Pierdomenico Pepe, <i>Co-chair:</i> Bernhard P. Lampe
13:40 – 14:00	Motor Selection in Mechatronic Systems Using 2k DoE Method; Zafer İbrahim Esen, Murat Şahin, Zafer Külünk	Standardizability of multivariable linear sampled-data systems with delay; Bernhard P. Lampe, Efim N. Rosenwasser
14:00 – 14:20	Realizing Steady Supply to a Treatment Plant from Multiple Sources; Ronald Robert Paul van Nooijen, Alla G. Kolechkina	On Dwell Time Minimization for Switched Delay Systems: Time-Scheduled Lyapunov Functions; Ahmet Taha Koru, Akin Delibasi, Hitay Ozbay
14:20 – 14:40	A Distributed Coverage Organization Algorithm for Self-Organizing Small Cell Networks; Kamil Şenel, Mehmet Akar	On Global Exponential Stability Preservation under Sampling for Globally Lipschitz Delay-Free and Retarded Systems; Pierdomenico Pepe, Emilia Fridman
14:40 – 15:00	Internal Model-Based Tracking Control of a Class of Nonlinear Systems Driven by Frequency-Varying References; Zhen Zhang, Han Chen, Peng Yan	Robust Optimization of Delay Differential Equations with State Dependent Delay; Jonas Otten, Martin Monnigmann
15:00 – 15:20		Robust Sample-and-Hold Stabilization for Nonlinear Retarded Systems; Mario Di Ferdinando, Pierdomenico Pepe
15:20 – 15:40	Coffee Break	
	Structural aspects and model reduction <i>Chair:</i> Sarah K. Spurgeon, <i>Co-Chair:</i> Christopher A. Beattie	Vibrations and acoustics <i>Chair:</i> Nejat Olgac <i>Co-chair:</i> Rudy Cepeda-Gomez
15:40 – 16:00	Partial Fraction Expansion Based Frequency Weighted Balanced Singular Perturbation Approximation Model Reduction Technique with Error Bounds; D. Kumar, A. Jazlan, V. Sreeram, R. Togneri	Passive suppression of thermoacoustic instability in a Rijke tube; Umut Zalluhoglu, Nejat Olgac
16:00 – 16:20	Strong Structural Non-Minimum Phase Systems; Andreas Daasch, Ferdinand Svaricek, Matthias Schultalbers	Effect of phase-shift feedback on thermoacoustic coupling; Beatriz Morán, Aditya Saurabh, Christian Oliver Paschereit, Lipika Kabiraj
16:20 – 16:40	A Structure-preserving Model Reduction Algorithm for Dynamical Systems with Nonlinear Frequency Dependency; Klajdi Sinani, Serkan Gugercin, Christopher A. Beattie	Electromechanical Delayed Resonator Implementation using Piezoelectric Networks; Ayhan Sebastian Kammer, Nejat Olgac
16:40 – 17:00	Centralized controller design using state space concept; Devi Arati, S. Narayanan	Delay Scheduling for Delayed Resonator Applications; Ali F. Ergenc, Oytun Eriş
17:00 – 17:20		Control of Pitch-Flap Instabilities in Helicopter Rotors using Delayed Feedback; Rudy Cepeda-Gomez
17:30 – 19:00	IFAC TC 2.2 Linear Systems Meeting	
19:00 – 22:30	Welcome Reception	

Thursday June 23, 2016 - morning

	SSSC (ROOM 131)	TDS (ROOM 127)
	<i>Control of complex systems and structural methods</i> <i>Chair: Nicos Karcanias</i>	<i>Control design</i> <i>Chair: Tian Qi, Co-chair: Dan Pilbauer</i>
8:40 – 9:00	System Degeneracy and the Output Feedback Problem: Parametrisation of the Family of Degenerate Compensators; Nicos Karcanias, Ioannis Meintanis, John G. Leventides	Robust controller design for neutral systems with distributed delay; Altug Iftar
9:00 – 9:20	Selection of Decentralised Schemes and Parametrisation of the Decentralised Degenerate Compensators; Nicos Karcanias, Ioannis Meintanis, John G. Leventides	Fractional Order PI Controller Design for Time Delay Systems; Ali Yuce, Nusret Tan, Derek P. Atherton
9:20 – 9:40	Selection of Decentralised Control Structures: Structural Methodologies and Diagnostics; Nicos Karcanias, John G. Leventides, Efstathios Milonidis, Ioannis Meintanis	Robust Constrained Receding Horizon Control for Linear Time-Varying Systems with Delays; Paul McGahan, Tomas Vyhlidal
9:40 – 10:00	Robustness Properties of Distributed Configurations in Multi-Agent Systems; Ivana Tomic, George Halikias	Fundamental Bounds for Stabilizability of Continuous-Time Systems under Stochastic Multiplicative Uncertainty and Delay; Jie Chen, Tian Qi
10:00 – 10:20	Zero Assignment Problem in RLC Networks; John G. Leventides, Maria Livada, Nicos Karcanias	Multi-criteria optimisation design of shapers with piece-wise equally distributed time-delay; Dan Pilbauer, Wim Michiels, Tomas Vyhlidal
10:20 – 10:40	<i>Coffee Break</i>	
	<i>Automotive and aircraft control</i> <i>Chair: Seyma Akyurek</i>	<i>Lyapunov methods and LMIs</i> <i>Chair: Sabine Mondie Co-chair: Alpaslan Parlakci</i>
10:40 – 11:00	HINF active anti-roll bar control to prevent rollover of heavy vehicles: a robustness analysis; Van Tan VU, Olivier Sename, Luc Dugard, Peter Gaspar	Obtention of the functional of complete type for neutral type delay systems via a new Cauchy formula; Marco Antonio Gomez, Alexey Egorov, Sabine Mondie
11:00 – 11:20	Disturbance Observer Based Optimal Controller Design for Active Suspension Systems; Mert Sever, Hakan Yazici	An Output Feedback Multivariable PD-Controller Design Method for Time Delay Systems: A New LMI Approach; Alpaslan Parlakci, Elbrous M. Jafarov
11:20 – 11:40	Altitude Control for Small Fixed-Wing Aircraft Using H_∞ Loop-Shaping Method; Seyma Akyurek, Unver Kaynak, Cosku Kasnakoglu	Delay-Dependent Criterion for Exponential Stability Analysis of Neural Networks with Time-Varying Delays; Arash Farnam, Reza Mahboobi Efsanjani, Aghil Ahmadi
11:40 – 12:00	Control Loss Recovery Autopilot Design for Fixed-Wing Aircraft; Seyma Akyurek, Burak Kurkcu, Unver Kaynak, Cosku Kasnakoglu	Discretized Jensen's inequality: an alternative vision of the reciprocally convex combination lemma; Alexandre Seuret, Frederic Gouaisbaut, Kun Liu
12:00 – 12:20	Fault tolerant flight control using sliding modes and subspace identification-based predictive control; Bilal Siddiqui, Sami El-Ferik, Mohamed Abdelkader	Lyapunov-Based Control of an Uncertain Euler-Lagrange System with Uncertain Time-Varying Input Delays without Delay Rate Constraints; Serhat Obuz, Anup Parikh, Indrasis Chakraborty, Warren E. Dixon
12:20 – 13:40	<i>Lunch</i>	

Thursday June 23, 2016 - afternoon

TDS (ROOM 127)

Multi-agent systems, including applications to connected vehicle systems

Chair: Gabor Orosz *Co-chair:* Leonid Mirkin

13:40 – 14:00	H2 Optimal Cooperation of Homogeneous Agents Subject to Delayed Information Exchange; Daria Madjidian, Leonid Mirkin
14:00 – 14:20	Input Delay Compensation in Multi-Agent Systems via Piecewise Constant Control; Anton Ponomarev, Hai-Tao Zhang
14:20 – 14:40	An Experimental Evaluation of a Model-Free Predictor Framework in Teleoperated Vehicles; Yingshi Zheng, Mark Brudnak, Paramsothy Jayakumar, Jeffrey L. Stein, Tulga Ersal
14:40 – 15:00	Robust Stability Analysis for Connected Vehicle Systems; David Hajdu, Linjun Zhang, Tamas Insperger, Gabor Orosz
15:00 – 15:20	Dynamics of Heterogeneous Connected Vehicle Systems; Nan Li, Gabor Orosz
15:20 – 5:40	Coffee Break
	Frequency Domain Techniques
	<i>Chair:</i> Vladimir Rasvan <i>Co-chair:</i> Fatihcan M. Atay
15:40 – 16:00	IAE Optimization of PID Control Loop with Delay in Pole Assignment Space; Pavel Zitek, Jaromir Fiser, Tomas Vyhlidal
16:00 – 16:20	Numerical Computation of H-infinity Optimal Controllers for Time Delay Systems Using YALTA; Mustafa Oguz Yegin, Hitay Ozbay
16:20 – 16:40	On Delay-Based Control of Low-Order LTI Systems: A Simple Alternative to PI/PID Controllers Under Noisy Measurements; Adrian Ramirez, Rubén Alejandro Garrido-Moctezuma, Rifat Sipahi, Sabine Mondie
16:40 – 17:00	Computer algebra methods for the stability analysis of differential systems with commensurate time-delays; Yacine Bouzidi, Adrien Poteaux, Alban Quadrat
17:00 – 17:20	Delays. Nonlinearity. Synchronization; Daniela Danciu, Vladimir Rasvan
17:20 – 17:40	On the Delay Margin for Consensus in Directed Networks of Anticipatory Agents; Dina Alina Irofti, Fatihcan M. Atay
	Banquet Dinner:
	cruise boat on the Bosphorus - busses depart at 18:00

Friday June 24, 2016 - morning

	SSSC (ROOM 131)	TDS (ROOM 127)
	<i>Stability and stabilization</i> <i>Chair:</i> Leyla Gören Sümer	<i>Computational tools</i> <i>Chair:</i> Altug Iftar, <i>Co-chair:</i> Daniel Bachrathy
8:40 – 9:00	Lyapunov Equation Based Stability Mapping Approach: A MIMO Case Study; Ilhan Mutlu, Frank Schrödel, Naim Bajcinca, Dirk Abel, Mehmet Turan Söylemez	Controller Design for Neutral Time-Delay Systems by Nonsmooth Optimization; Süleyman Mert Özer, Altug Iftar
9:00 – 9:20	Structural Stability and Equivalence of Linear 2D Discrete Systems; Olivier Bachelier, Thomas Cluzeau, Ronan David, Nima Yeganefar	Strong Stabilization of Lossless Propagation Time-Delay Systems by Continuous Pole Placement; Huseyin Ersin Erol, Altug Iftar
9:20 – 9:40	Stabilization of Controller-Driven Nonuniformly Sampled Systems via Digital Redesign; Ufuk Sevim, Leyla Gören Sümer	Efficient Computation Method for Strong Stability Area of Neutral Equations; Daniel Bachrathy
9:40 – 10:00	Feedback stabilization: a group theoretic approach; Jozsef Bokor, Zoltan Szabo	A comparative overview and expansion of frequency based stability boundary mapping methods for time delay systems; Frank Schrödel, Dirk Abel, Michael Abdelmalek
10:00 – 10:20	Decentralised Stabilisation of Nonlinear Time Delay Interconnected Systems Xing-Gang Yan, Sarah K. Spurgeon, Dongya Zhao, Lei Guo	A bilevel optimization approach for D-invariance design; Mohammed Tahar Laraba, Morten Hovd, Sorin Olaru, Silviu-Iulian Niculescu
10:20 – 10:40	<i>Coffee Break</i>	
	<i>Fractional order systems</i> <i>Chair:</i> Vahid Aefinfar	<i>Biology, including population dynamics</i> <i>Chair:</i> György Liptak, <i>Co-chair:</i> Meltem Gölgeli
10:40 – 11:00	Robust Fractional Order PI Controller Tuning Based on Bode's Ideal Transfer Function; Roohallah Azarmi, Mahsan Tavakoli-Kakhki, Ali Khaki Sedigh, Alireza Fatehi	LQ Control of Lotka-Volterra Systems Based on their Locally Linearized Dynamics; Gyorgy Liptak, Attila Magyar, Katalin M. Hangos
11:00 – 11:20	Fractional PID Controller Design Based on Minimizing Performance indices; Badreddine Boudjehem, Djalil Boudjehem	Analysis of a Nonlinear Delay Differential-Difference Biological Model; Walid Djema, Frederic Mazenc, Catherine Bonnet
11:20 – 11:40	Robust Filtering for Continuous-Time Uncertain Linear Fractional Transformation Systems; Vahid Aefinfar, Javad Askari, Arash Sadeghzadeh	Design of a switched robust control scheme for drug delivery in blood pressure regulation; Saeed Ahmed, Hitay Ozbay
11:40 – 12:00	Robust Fractional Order Controller for Chaotic Systems; Djalil Boudjehem, Badreddine Boudjehem	A mathematical model for cholesterol biosynthesis under nicotine exposure; Meltem Golgeli, Hitay Ozbay
12:00 – 12:20	Generalized Fractional Order Normalized LMS Algorithm with Direction Optimization; Songsong Cheng, Yiheng Wei, Yuquan Chen, Xiaojian Li, Yong Wang	
12:20 – 13:30	<i>Farewell Reception</i>	
13:30 – 16:00	<i>IFAC Council Meeting: Presentations for the 2023 World Congress Venue and final selection</i>	