

4th IFAC Symposium on System, Structure and Control 2010

**Ancona, Italy
15 – 17 September 2010**

ISBN: 978-1-61782-554-5

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

Copyright© (2010) by Elsevier Limited
All rights reserved.

Printed by Curran Associates, Inc. (2011)

For permission requests, please contact the publisher, Elsevier Limited
at the address below.

Elsevier Limited
The Boulevard, Langford Lane
Kidlington OX5 1GB, United Kingdom

Phone: +44 (0)1865 844640
Fax: +44 (0)1865 843912

Email: eurobkinfo@elsevier.com

Additional copies of this publication are available from:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: 845-758-0400
Fax: 845-758-2634
Email: curran@proceedings.com
Web: www.proceedings.com

TABLE OF CONTENTS

On Synchronous Steady States and Internal Models of Diffusively Coupled Systems.....	1
<i>P. Wieland, F. Allgower</i>	
Velocity Sensorless Control of Uncertain Load Using RKF Tuned with an Evolutionary Algorithm and Mu-Analysis.....	11
<i>S. Carriere, S. Caux, M. Fadel, F. Alonge</i>	
LFT/H_∞ Varying Sampling Control for Autonomous Underwater Vehicles	17
<i>E. Roche, O. Sename, D. Simon</i>	
An Extension of Mixed Sky-Hook and ADD to Magneto-Rheological Dampers.....	25
<i>A. Do, O. Sename, L. Dugard, S. Savaresi, C. Spelta, D. Delvecchio</i>	
Some Remarks on the Asymptotic Zeros Behavior of Sampled-Data SISO Systems: An Eigenvalue-Based Approach.....	32
<i>C. Mendez-Barrios, S. Niculescu</i>	
Model Structure Evolution Continuous Fraction Descriptions	38
<i>N. Karcanias, G. Grigoriou</i>	
Dynamic Polynomial Combinants and Generalised Resultants: Parameterization According to Order and Degree.....	46
<i>N. Karcanias, G. Galanis</i>	
Disturbance and Input - Output Decoupling of Singular Systems.....	54
<i>D. Vafiadis, N. Karcanias</i>	
Perturbation Theory for a Homogeneous Descriptor Regular Differential System.....	62
<i>A. Karageorgos, A. Pantelous, G. Kalogeropoulos</i>	
A LPV Quarter of Car with Semi-Active Suspension Model Including Dynamic Input Saturation	68
<i>J. Lozoya-Santos, O. Sename, L. Dugard, R. Morales-Mendez, R. Ramirez-Mendoza</i>	
Comparing PI Controllers for Delay Models of TCP/AQM Networks	76
<i>H. Unal, D. Melchor-Aguilar, D. Ustebay, S. Niculescu, H. Ozbay</i>	
Multiple Nonholonomic Mobile Robots in the Environment with Obstacles.....	84
<i>W. Kowalczyk, K. Kozłowski</i>	
Principal Component Analysis Based on ANOVA Test for Multishaft Centrifugal Compressor Fault Detection and Diagnosis	90
<i>S. Zanoli, G. Astolfi, L. Barboni</i>	
Finite Structure of LTV Systems Modelled by Bond Graph: An Algebraic Approach.....	97
<i>D. Yang, N. Palitzyne, C. Sueur</i>	
Fixed Poles of Almost Disturbance Decoupling by State Feedback.....	105
<i>R. Zou, M. Malabre</i>	
Modelling Evolution of the $3x+1$ Dynamical System Via Markov Partitions	111
<i>J. Leventides, C. Pandis, N. Karcanias</i>	
Approximating Distributional Behaviour of Linear Systems Using Gaussian Function and Its Derivatives.....	115
<i>A. Pantelous, N. Karcanias</i>	
On the Robust Control of DC-DC Converters: Application to a Hybrid Power Generation System.....	123
<i>D. Hernandez-Torres, O. Sename, D. Riu, F. Druart</i>	
Determination of the Dimensions of Strong Structural Controllable Subspaces	131
<i>J. Jarczyk, F. Svaricek, B. Alt</i>	
Commuting Operations on Signal-Flow Graphs for Visualization of Interconnected Systems	138
<i>A. Johansson</i>	
Desingularization of Non Local Dynamic Models by Means of Operatorial Transformations and Application to a Flame Model.....	146
<i>E. Montseny</i>	
Controllability and Reconstructibility of Periodic State Space Systems - A Behavioral Approach.....	152
<i>J. Aleixo, P. Rocha</i>	
Control of a Class of Constrained Implicit Systems	160
<i>R. Bacos, J. Cury, J. Loiseau</i>	
Sensor Location for the Disturbance Rejection by Measurement Feedback Problem.....	166
<i>C. Commault, J. Dion, T. Do</i>	
Disturbance Decoupling of Coupled Tanks: From Theory to Practice.....	172
<i>V. Zilka, M. Halas</i>	

On Gramians Properties of Continuous Control Systems	178
<i>I. Yadykin</i>	
Unknown-State, Unknown-Input Reconstruction in Discrete-Time Systems with Invariant Zeros: Geometric Solutions for Nonminimal Triples	184
<i>G. Marro, E. Zattoni</i>	
The Non Interacting Control Problem for Linear Parameter Varying Systems	192
<i>A. Perdon, A. Bonci</i>	
Robustness Margin in Linear Time Invariant Fractional Order Systems	198
<i>K. Moornani, M. Haeri</i>	
R-Composition of Quadratic Lyapunov Functions for Stabilizability of Linear Differential Inclusions	204
<i>A. Balestrino, A. Caiti, E. Crisostomi, S. Grammatico</i>	
On the Robust Tuning of Controllers with Recycle Compensators	211
<i>N. Armbrust, D. Sbarbaro</i>	
Robust Controller Tuning for Integral Dead Time Systems	218
<i>M. Huba</i>	
State Estimation in Nonlinear Quadratic Systems	226
<i>F. Amato, C. Cosentino, A. Merola</i>	
Issues on Global Stabilization of Linear Systems Subject to Actuator Saturation	231
<i>T. Yang, A. Stoorvogel, A. Saberi</i>	
Periodic Behavior Of Locally Stabilizing Saturated Linear Controllers For The Discrete-Time Double Integrator	237
<i>T. Yang, A. Stoorvogel, X. Wang, A. Saberi</i>	
Synthesis of Regular Controls for the Global CLF Stabilization of Nonlinear Systems	242
<i>J. Solis-Daun, B. Aguirre, R. Suarez</i>	
Stabilization Strategy for Unstable First Order Linear Systems with Large Time Delay	249
<i>B. Del-Muro-Cuellar, J. Marquez-Rubio, M. Velasco-Villa, J. Alvarez-Ramirez</i>	
Limit Behavior of a Linear-Quadratic Optimal Control Problem for Singularly Perturbed Systems with Small Delays	254
<i>V. Glizer</i>	
Output Reference Tracking of Input-Delayed Systems in Presence of Actuator Saturation	261
<i>F. Giri, V. Assche, A. Mahjoub, F. Chaoui</i>	
Trajectory Tracking for Systems with Pointwise and Distributed Delays with Input Constraint	267
<i>V. Assche, F. Giri, A. Mahjoub, F. Chaoui</i>	
QFT Control of a Two-Link Rigid-Flexible Manipulator	274
<i>M. Mirshamsi, M. Rafeeyan</i>	
Convergence of Series Expansions for Some Infinite Dimensional Nonlinear Systems	282
<i>T. Helie, B. Laroche</i>	
LPV Controller Design for Robot Manipulators Based on Augmented LMI Conditions with Structural Constraints	289
<i>H. Halalchi, G. Bara, E. Laroche</i>	
Characterization of Hysteresis in a Pneumatic Muscle Manipulator with Accounting for the Creep Effect	296
<i>V. Tri, B. Kamers, H. Ramon, H. Brussel</i>	
Optimal Controller Structure Reduction for Decentralized Control	303
<i>S. Schuler, U. Munz, F. Allgower</i>	
A Model-Based Control Scheme with Observer and Sampled Information	309
<i>G. Conte, A. Perdon, G. Vitaoli</i>	
Consensus over Ring Networks As a Quadratic Optimal Control Problem	317
<i>J. Rogge, J. Suykens, D. Aeyels</i>	
Performance Metrics in the Consensus Problem: A Survey	324
<i>E. Lovisari, S. Zampieri</i>	
Input-Output Finite-Time Stabilization for a Class of Hybrid Systems	336
<i>F. Amato, G. Tommasi</i>	
Hierarchical Coordinated Freeway on Ramp Metering Using Switching System Theory	342
<i>A. Lemarchand, J. Martinez, D. Koenig</i>	
On the Left-Invertibility of Switched Linear Systems	350
<i>M. Kaba, M. Camlibel</i>	
Stabilizing Switching Control for LPV Systems with Arbitrarily Large Uncertainty on Parameter Measures	356
<i>L. Jetto, V. Orsini</i>	
On the Use of a Global Control Lyapunov Functional in Infinite-Dimensional Predictive Control	363
<i>T. Pham, D. Georges, G. Besancon</i>	

Introduction to Diffusive Representation	370
<i>C. Casenave, G. Montseny</i>	
Identification of Time-Non Local Models under Diffusive Representation	378
<i>C. Casenave</i>	
Boundary Damping for Mixed Finite/Infinite Dimensional Systems.....	386
<i>R. Bayadi, R. Banavar</i>	
Author Index	