

2009 American Control Conference

(ACC 2009)

**St. Louis, Missouri, USA
10 – 12 June 2009**

Pages 1 - 634



**IEEE Catalog Number: CFP09ACC-PRT
ISBN: 978-1-4244-4523-3**

TABLE OF CONTENTS

WEA01

DYNAMIC OPTIMIZATION

Model Predictive Control of Parabolic PDE Systems with Dirichlet Boundary Conditions Via Galerkin Model Reduction	1
<i>Yongsheng Ou, Eugenio Schuster</i>	
Variable Structure Extremum Seeking Control Based on Sliding Mode Gradient Estimation for a Class of Nonlinear Systems	8
<i>Lina Fu, Umit Ozguner</i>	
Algorithm for Very Fast Computation of Least Absolute Value Regression	14
<i>Amin Nobakhti, Hong Wang, Tianyou Chai</i>	
Extremum Seeking Control for Efficient and Reliable Operation of Air-Side Economizers	20
<i>Pengfei Li, Yaoyu Li, John E. Seem</i>	
Stopping Small-Sample Stochastic Approximation	26
<i>David W. Hutchison, James C. Spall</i>	
Optimal Spatial Field Control of Distributed Parameter Systems	32
<i>Masako Kishida, Richard D. Braatz</i>	

WEA02

CONTROL IN MODERN PRINTING SYSTEMS: MODULAR RECONFIGURABLE MEDIA PATHS, COLOR CONSISTENCY, FUSER PROCESS, AND REGISTRATION

Control in Printing Systems: Modular Reconfigurable Media Paths	38
<i>Haitham Hindi, Lara S. Crawford</i>	
Control of Non-linear and Non-holonomic Sheet Registration Devices	53
<i>Martin Krucinski, Marina Tharayil</i>	

WEA03

SLIDING MODE CONTROL

A Sub-Optimal Second Order Sliding Mode Controller for Current-fed Induction Motors	59
<i>Antonella Ferrara, Matteo Rubagotti</i>	
Inducing Oscillations in an Inertia Wheel Pendulum Via Two-Relays Controller: Theory and Experiments	65
<i>Luis T. Aguilar, Igor Boiko, Leonid M. Fridman, Leonid Freidovich</i>	
Sliding Mode Control of Uncertain Multivariable Nonlinear Systems Applied to Uncalibrated Robotics Visual Servoing	71
<i>Tiago Roux Oliveira, Alessandro Jacoud Peixoto, Antonio C. Leite, Liu Hsu</i>	
Causal Output Tracking in Nonminimum Phase Boost DC/DC Converter Using Sliding Mode Techniques	77
<i>Simon Baev, Yuri B. Shtessel</i>	
Sliding Mode Regulator as Solution to Optimal Control Problem for Nonlinear Polynomial Systems	83
<i>Michael V. Basin, Dario Calderon-Alvarez</i>	
Bilateral Teleoperation Using Unknown Input Observers for Force Estimation	89
<i>John Michael Daly, David Wang</i>	

WEA04

STABILITY OF NONLINEAR SYSTEMS

Lyapunov Functions under LaSalle Conditions with an Application to Lotka-Volterra Systems	96
<i>Frederic Mazenc, Michael Malisoff</i>	
Flexible Control Lyapunov Functions	102
<i>Mircea Lazar</i>	
Refining LaSalle's Invariance Principle	108
<i>Alessandro Arsie, Christian Ebenbauer</i>	

Less Conservative Absolute Stability Criteria Using Integral Quadratic Constraints	113
<i>Donatello Materassi, Murti V. Salapaka</i>	
Sensitivity of Operator-Based Nonlinear Feedback Control Systems	119
<i>Changan Jiang, Mingcong Deng, Akira Inoue</i>	
On the Existence of Stable, Causal Multipliers for Systems with Slope-Restricted Nonlinearities	121
<i>Matthew C. Turner, Ian Postlethwaite, Murray Lawrence Kerr</i>	

WEA05

CONTROL OF NETWORKED AND DISTRIBUTED PROCESS SYSTEMS

Centralized and Decentralized Policies for the Containment of Moving Source in 2D Diffusion Processes Using Sensor/actuator Network	127
<i>Michael A. Demetriou</i>	
A Two-Tier Control Architecture for Nonlinear Process Systems with Continuous/Asynchronous Feedback	133
<i>Panagiotis D. Christofides, Jinfeng Liu, David Muñoz de la Peña, Benjamin James Ohran, James F. Davis</i>	
Optimal Boundary Control of Kuramoto-Sivashinsky Equation	141
<i>Stevan Džurđević</i>	
A Safe-Parking Framework for Plant-Wide Fault-Tolerant Control	148
<i>Rahul Gandhi, Prashant Mhaskar</i>	
Resource-Aware Quasi-Decentralized Control of Nonlinear Plants Over Communication Networks	154
<i>Yulei Sun, Nael H. El-Farra</i>	
Model-Based Control of Multi-Unit Systems under Partial Shutdown Conditions	160
<i>Zhiwen Chong, Christopher L. E. Swartz</i>	

WEA06

COMMAND SHAPING FOR VIBRATION SUPPRESSION

Performant Design of an Input Shaping Prefilter Via Embedded Optimization	166
<i>Liebooud Van Den Broeck, Moritz Diehl, Jan Swevers</i>	
H_∞ Closed-Loop Control for Unstable Uncertain Discrete Input-Shaped Systems	172
<i>John Stergiopoulos, Anthony Tzes</i>	
Input Shapers for Reducing Overshoot in Human-Operated Flexible Systems	178
<i>Joshua Vaughan, William Singhose</i>	
Reducing Vibration and Providing Robustness with Multi-Input Shapers	184
<i>Joshua Vaughan, William Singhose</i>	
Adaptive Inverse Control for Settling Performance Improvements	190
<i>Brian Rigney, Lucy Y. Pao, Dale A. Lawrence</i>	
Regulating Web Tension in Tape Systems with Time-Varying Radii	198
<i>Hua Zhong, Lucy Y. Pao</i>	

WEA07

FAULT DETECTION

Data-Driven Estimation of Multiple Fault Parameters in Permanent Magnet Synchronous Motors	204
<i>Subhadeep Chakraborty, Chinmay Rao, Eric Keller, Asok Ray, Murat Yasar</i>	
Ultrasonic Measurement of Crack Opening Load for Life-Extending Control of Mechanical Structures	210
<i>Dheeraj Singh, Abhishek Srivastav, Shalabh Gupta, Eric Keller, Asok Ray</i>	
Estimation of Multiple Faults in Aircraft Gas-Turbine Engines	216
<i>Soumik Sarkar, Chinmay Rao, Asok Ray</i>	
Fault-Tolerant Controller Synthesis for Piecewise-Affine Systems	222
<i>Nastaran Nayehpanah, Luis Rodrigues, Youmin Zhang</i>	
Transformations of Markov Processes in Fault Tolerant Interconnected Systems	227
<i>Jorge R. Chávez-Fuentes, Oscar R. González, W. Steven Gray</i>	

Sensor Maneuver Design for Microwave Source Localization	233
<i>Neng Eva Wu, Jong-Yeob Shin, Kun Huang</i>	

WEA08

ITERATIVE LEARNING CONTROL: THEORY, DESIGN, AND APPLICATION I

An Iterative Learning Control Design for Self-Servowriting in Hard Disk Drives Using L1 Optimal Control	240
<i>Feng Dan Dong, Masayoshi Tomizuka</i>	
Design of Iterative Learning Controller Based on Frequency Domain Linear Matrix Inequality	246
<i>Kiyonori Inaba, Chun-Chih Wang, Masayoshi Tomizuka, Andrew K. Packard</i>	
Objective-Driven ILC for Point-To-Point Movement Tasks	252
<i>Christopher T. Freeman, Zhonglun Cai, Paul L. Lewin, Eric Rogers</i>	
Reading of Cracked Optical Discs Using Iterative Learning Control	258
<i>Maarten Steinbuch, Koos Berkel, Van, George A. L. Leenknecht, Tom Oomen, Jeroen Van De Wijdeven</i>	
Norm Optimal ILC with Time-Varying Weighting Matrices	264
<i>Kira Barton, Andrew G. Alleyne</i>	

WEA09

CONTROL OF NANOPositionING AND SPM SYSTEMS

Low-Order System Identification and Optimal Control of Intersample Behavior in ILC	271
<i>Tom Oomen, Jeroen Van De Wijdeven, Okko H. Bosgra</i>	
Tracking Control of Time-Varying Discontinuous Trajectories with Application to Probe-Based Imaging and Nanopositioning	277
<i>Saeid Bashash, Reza Saeidpourazar, Nader Jalili</i>	
Improved Noise Sensitivity under High-Gain Feedback in Nano-Positioning Motion Systems	283
<i>Marcel Heertjes, George A. L. Leenknecht, Bram Van Goch, Hendrik Nijmeijer</i>	
A New Robust Damping and Tracking Controller for SPM Positioning Stages	289
<i>Andrew J. Fleming, Sumeet Aphale, S. O. Reza Moheimani</i>	
An Iterative Control Approach to High-Speed Probe-Based Nanofabrication	295
<i>Yan Yan, Qingze Zou, Zhiqun Lin</i>	
Repetitive Control with Prandtl-Ishlinskii Hysteresis Inverse for Piezo-Based Nanopositioning	301
<i>Kam K. Leang, Yingfeng Shan</i>	
Hysteresis Compensation for Smart Actuators Using Inverse Generalized Prandtl-Ishlinskii Model	307
<i>Mohammad Al Janaideh, Ying Feng, Subhash Rakheja, Chun-Yi Su, Camille Alain Rabbath</i>	

WEA10

BIOLOGICAL SYSTEMS I

Targeting a Fixed Percentage of Granulocyte Differentiation Using Experiments Designed Via Nonlinear Model Predictive Control	313
<i>Sarah Noble, Ann E. Rundell</i>	
Linear Control Analysis for the Autocatalytic Glycolysis System	319
<i>Fiona Adriani Chandra, Gentian Buzi, John C. Doyle</i>	
Development of Two-Degree-Of-Freedom Control for Robot Manipulator with Biarticular Muscle Torque	325
<i>Sehoon Oh, Yoichi Hori</i>	
Switched Control of Mechanical Systems by Using Musculotendon Actuators	331
<i>Adriana Salinas-Avila, Javier Moreno-Valenzuela</i>	
Bifurcation Analysis of a Thalamic Relay Neuron Model	337
<i>Huibing Yin, Charles Cox, Prashant G. Mehta, Uday V. Shanbhag</i>	
Modeling and Simulation of Diurnal Biological Processes in Cyanobacteria	343
<i>Thanura Elvitigala, Himadri Pakrasi, Bijoy Ghosh</i>	

WEA11

OPTIMAL CONTROL I

Parametric Sensitivity of Path-Constrained Optimal Control: Towards Selective Input Adaptation	349
<i>Saurabh Deshpande, Benoît Chachuat, Dominique Bonvin</i>	

Optimal Control of Nonlinear Systems Using RBF Neural Network and Adaptive Extended Kalman Filter	355
<i>Peda Medagam, Farzad Pourboghra</i>	
Optimal Control of Uncertain Nonlinear Systems Using a Neural Network and RISE Feedback	361
<i>Keith Dupree, Parag Patre, Zachary Wilcox, Warren E. Dixon</i>	
Optimal Mobile Actuator/Sensor Network Motion Strategy for Parameter Estimation in a Class of Cyber Physical Systems	367
<i>Christophe Tricaud, Yangquan Chen</i>	
Game-Theoretic Analysis of a Visibility Based Pursuit-Evasion Game in the Presence of Obstacles	373
<i>Sourabh Bhattacharya, Seth Hutchinson, Tamer Basar</i>	
Robust and Chance-Constrained Optimization under Polynomial Uncertainty	379
<i>Fabrizio Dabbene, Chao Feng, Constantino M. Lagoa</i>	

WEA12

COMPUTATIONAL METHODS

On the Generation of Nearly Optimal, Planar Paths of Bounded Curvature and Bounded Curvature Gradient	385
<i>Efstathios Bakolas, Panagiotis Tsiotras</i>	
Design of Guaranteed Cost Overlapping Controllers for a Class of Uncertain State-Delay Systems	391
<i>Josep M. Rossell, Francisco Palacios-Quiñero</i>	
On Quantized Consensus by Means of Gossip Algorithm - Part I: Convergence Proof	394
<i>Javad Lavaei, Richard M. Murray</i>	
NTGsim: A Graphical User Interface for the Nonlinear Trajectory Generation Algorithm	402
<i>Lyall Jonathan Di Trapani, Tamer Inanc</i>	
Dynamics of Connected Rigid Bodies in a Perfect Fluid	408
<i>Taeyoung Lee, Melvin Leok, N. Harris McClamroch</i>	
Shortest Distance Problems in Graphs Using History-Dependent Transition Costs with Application to Kinodynamic Path Planning	414
<i>Raghvendra Cowlagi, Panagiotis Tsiotras</i>	

WEA13

ESTIMATION AND CONTROL FOR VEHICLE SYSTEMS

Driving Skill Recognition: New Approaches and Their Comparison	420
<i>Xidong Tang</i>	
Estimation of Road Inclination and Bank Angle in Automotive Vehicles	426
<i>Håvard F. Grip, Lars Imsland, Tor Arne Johansen, Jens Christian Kalkkuhl, Avshalom Suissa</i>	
Real-Time Estimation of Roll Angle and CG Height for Active Rollover Prevention Applications	433
<i>Rajesh Rajamani, Damrongrit Piyabongkarn, Vasilios Tsourapas, Jae Lew</i>	
New Method of Identifying Real-Time Predictive Lateral Load Transfer Ratio for Rollover Prevention Systems	439
<i>Vasilios Tsourapas, Damrongrit Piyabongkarn, Alexander C. Williams, Rajesh Rajamani</i>	
Robust Fixed-Structure Controller Design of Electric Power Steering Systems	445
<i>Ahmed H. El-Shaer, Sumio Sugita, Masayoshi Tomizuka</i>	
Nonlinear Crossover Model of Vehicle Directional Control	451
<i>Tim Gordon</i>	

WEA15

LINEAR SYSTEMS UNDER FEEDBACK

Spectral Factorization of Non-Classical Information Structures under Feedback	457
<i>John Swigart, Sanjay Lall</i>	
Almost Disturbance Decoupling: Static State Feedback Solutions with Maximal Pole Assignment	463
<i>Runmin Zou, Michel Malabre</i>	
A Correct Characterization of Strict Positive Realness for MIMO Systems	469
<i>Martin J. Corless, Robert Shorten</i>	
Finite-Time Control for Linear Systems with Input Constraints	476
<i>Hiroyuki Ichihara, Hitoshi Katayama</i>	
Closed-Form Solution for a Class of Discrete-Time Algebraic Riccati Equations	482
<i>Alejandro J. Rojas</i>	

An Analysis and Synthesis of Internal Model Principle Type Controllers	488
<i>Yigang Wang, Kevin Chu, Tsu-Chin Tsao</i>	

WEA16
ESTIMATION I

State and Parameter Estimation Using Bayesian Belief Networks	494
<i>Ameneh Sahraneshin, Nasir Mehranbod, Reza Eslamlouian, Masoud Soroush</i>	
Gradient-Based Iterative Solutions for General Matrix Equations	500
<i>Li Xie, Jie Ding, Feng Ding, Huizhong Yang</i>	
Central Suboptimal H_∞ Filter Design for Nonlinear Polynomial Systems	506
<i>Michael V. Basin, Peng Shi, Dario Calderon-Alvarez</i>	
Decentralized Centroid Estimation for Multi-Agent Systems in Absence of Any Common Reference Frame	512
<i>Andrea Gasparri, Mauro Franceschelli</i>	
Multiple Model Adaptive Estimation and Model Identification using a Minimum Energy Criterion	518
<i>Vahid Hassani, A. Pedro Aguiar, Michael Athans, Antonio M. Pascoal</i>	
Minimum Sum of Distances Estimator: Robustness and Stability	524
<i>Yoav Sharon, John Wright, Yi Ma</i>	

WEA17
ACTUATOR SATURATION CONTROL

Output Tracking Control for Continuous-Time Networked Control Systems with Communication Constraints	531
<i>Yu-Long Wang, Guang-Hong Yang</i>	
Robust Control of Ship Fin Stabilizers Subject to Disturbances and Constraints	537
<i>Reza Ghaemi, Jing Sun, Ilya V. Kolmanovskiy</i>	
Stabilizing Control for an Inverted Pendulum with Restricted Travel	543
<i>Kazunobu Yoshida, Iharu Matsumoto</i>	
Constrained Controller Design for a Class of Nonlinear Discrete-Time Uncertain Systems	549
<i>Dipak Adhyaru, Indra Narayan Kar, M. Gopal</i>	
Beam-And-Ball System under Limited Control: Stabilization with Large Basin of Attraction	555
<i>Yannick Aoustin, Alexander Formal'sky</i>	
GPS-INS State Estimation for Multi-Robot Systems with Computational Resource Constraints	561
<i>Luke Wachter, Laura Ray</i>	

WEA18
ADAPTIVE CONTROL

Adaptive Robust Control: A Piecewise Lyapunov Function Approach	568
<i>Jianming Lian, Jianghai Hu, Stanislaw H. Zak</i>	
Continuous Model Reference Adaptive Control with Sliding Mode for a Class of Nonlinear Plants with Unknown State Delay	574
<i>Boris Mirkin, Per-Olof Gutman, Yuri B. Shtessel</i>	
Adaptive Asymptotic Tracking Control of a Class of Discrete-Time Nonlinear Systems with Parametric and Nonparametric Uncertainties	580
<i>Chenguang Yang, Shi-Lu Dai, Shuzhi Sam Ge, Tong Heng Lee</i>	
Adaptive Control of a Class of Strict-Feedback Discrete-Time Nonlinear Systems with Unknown Control Gains and Preceded by Hysteresis	586
<i>Shuzhi Sam Ge, Chenguang Yang, Shi-Lu Dai, Tong Heng Lee</i>	
Multivariable MRAC with State Feedback for Output Tracking	592
<i>Jiaxing Guo, Yu Liu, Gang Tao</i>	
Structural Performance Improvement Using MR Dampers with Adaptive Control Method	598
<i>Maryam Bitaraf, Luciana Barroso</i>	

WEA19
COOPERATIVE CONTROL I

Dynamic Multi-Vehicle Routing with Multiple Classes of Demands	604
<i>Marco Pavone, Stephen L. Smith, Francesco Bullo, Emilio Frazzoli</i>	

Formation Shape and Orientation Control Using Projected Collinear Tensegrity Structures	610
<i>Darren Pais, Ming Cao, Naomi Ehrich Leonard</i>	
On Controlled Sinusoidal Phase Coupling	616
<i>Daniel J. Klein, Emmett Lalish, Kristi A. Morgansen</i>	
Stabilization of Collective Motion in a Time-Invariant Flow Field on a Rotating Sphere	623
<i>Sonia Hernandez, Derek A. Paley</i>	
Characterizing Convergence Speed for Consensus Seeking Over Dynamically Switching Directed Random Networks	629
<i>Jing Zhou, Qian Wang</i>	
Cooperative Target-Capturing Strategy for Multi-Vehicle Systems with Dynamic Network Topology	635
<i>Hiroki Kawakami, Toru Namerikawa</i>	

WEA20

CONTROL AND OPTIMIZATION OF ENERGY SYSTEMS

Optimal Design and Observation of Counter-Current Autothermal Reactors for the Production of Hydrogen	641
<i>Michael Baldea, Monica Zanfir, Prodromos Daoutidis</i>	
Vapor Recompression Distillation: Multi-Scale Dynamics and Control	647
<i>Sujit S. Jogwar, Prodromos Daoutidis</i>	
Networked Control of Distributed Energy Resources: Application to Solid Oxide Fuel Cells	653
<i>Yulei Sun, Sathyendra Ghantasala, Nael H. El-Farra</i>	
Nonlinear Multivariable Predictive Control of an Autothermal Reforming Reactor for Fuel Cell Applications	659
<i>Yongyou Hu, Donald J. Chmielewski</i>	
Optimal Operation of a Waste Incineration Plant	665
<i>Johannes Ernst Peter Jäschke, Helge Smedsrud, Sigurd Skogestad, Henrik Manum</i>	
Models for the Optimization and Risk Management of Energy Conversion Networks	671
<i>Jeffrey C. Kantor, Patrick Mousav</i>	

WEB01

VEHICLE CHASSIS CONTROL

Global and Local Chassis Control Based on Load Sensing	677
<i>Mathieu Gerard, Michel Verhaegen</i>	
Controlling Active Cabin Suspensions in Commercial Vehicles	683
<i>Willem-Jan Evers, Igo Besselink, Albert Van Der Knaap, Arjan Teerhuis, Hendrik Nijmeijer</i>	
Vehicle Yaw Inertia and Mass Independent Adaptive Control for Stability and Trajectory Tracking Enhancements	689
<i>Junmin Wang, Ming Feng Hsieh</i>	
Vehicle Handling Assistant Control System Via Independent Rear Axle Torque Biasing	695
<i>Hai Yu, Wei Liang, Ming L. Kuang, Ryan McGee</i>	
Vehicle Stabilization in Response to Exogenous Impulsive Disturbances to the Body	701
<i>Jing Zhou, Jianbo Lu, Hwei Peng</i>	
Terrain-Based Road Vehicle Localization on Multi-Lane Highways	707
<i>Adam Dean, Sean Brennan</i>	

WEB02

MARKOV MODELS AND DECISION PROCESSES

The Analysis of Discrete Transient Events in Markov Games	713
<i>Brian D. Ewald, Jeffrey Humpherys, Jeremy West</i>	
Lyapunov Stability for Quantum Markov Processes	719
<i>Ram Abhinav Somaraju, Ian R. Petersen</i>	
Regularized Fitted Q-Iteration for Planning in Continuous-Space Markovian Decision Problems	725
<i>Amir Massoud Farahmand, Ghavamzadeh Mohammad, Csaba Szepesvári, Shie Mannor</i>	
An Information-Theoretic Framework to Aggregate a Markov Chain	731
<i>Kun Deng, Yu Sun, Prashant G. Mehta, Sean Meyn</i>	
Hidden Markov Models for Non-Well-Mixed Reaction Networks	737
<i>Nils Napp, David Thorsley, Eric Klavins</i>	

Approximate Dynamic Programming Using Bellman Residual Elimination and Gaussian Process Regression.....	745
<i>Brett Bethke, Jonathan P. How</i>	

WEB03

SLIDING MODE CONTROL II

Path Following of Underactuated Surface Ships	751
<i>Renxiang Bu, Zhengjiang Liu, Tieshan Li, Jiangqiang Hu</i>	
Singular Perturbation Analysis of Discrete-Time Output Feedback Sliding Mode Control with Disturbance Attenuation.....	757
<i>Thang Nguyen, Zoran R. Gajic, Wu-Chung Su</i>	
Linear Matrix Inequality Based Dynamic Output Feedback Sliding Mode Control for Uncertain Plants	763
<i>J. M. Andrade Da Silva, Christopher Edwards, Sarah K. Spurgeon</i>	
Adaptive Global Sliding Mode Control Strategy for the Vehicle Antilock Braking Systems.....	769
<i>Yuanwei Jing, Yan-E Mao, Georgi M Dimirovski, Yan Zheng, Siying Zhang</i>	
Optimal Design of Rotating Sliding Surface for Sliding Mode Control.....	774
<i>Sajad Saeedi Gharahbolagh, Mohammad T. H. Beheshti</i>	
Optimal Controller for Uncertain Stochastic Polynomial Systems with Deterministic Disturbances.....	778
<i>Michael V. Basin, Dario Calderon-Alvarez</i>	

WEB04

NONLINEAR SYSTEMS I

Local Robust Performance Analysis for Nonlinear Dynamical Systems	784
<i>Ufuk Topcu, Andrew K. Packard</i>	
Linearized Analysis Versus Optimization-Based Nonlinear Analysis for Nonlinear Systems	790
<i>Ufuk Topcu, Andrew K. Packard</i>	
An Improved Nonlinear H_∞ Synthesis for Parameter-Dependent Polynomial Nonlinear Systems Using SOS Programming	796
<i>Dan Zhao, Jian Liang Wang</i>	
On Semi-Global Stabilization of Minimum Phase Nonlinear Systems without Vector Relative Degrees	802
<i>Xinmin Liu, Zongli Lin</i>	
Contraction Based Adaptive Control of a Class of Nonlinear Systems.....	808
<i>B. B. Sharma, Indra Narayan Kar</i>	
Describing Function Analysis of Dahl Model Friction	814
<i>Daniel Helmick, William Messner</i>	

WEB05

DISTRIBUTED PARAMETER SYSTEMS I

A Comparison of Balanced Truncation Methods for Closed Loop Systems	820
<i>John Singler, Belinda A. Batten</i>	
Incorporating Communication Delays in the Guidance of a Moving Actuator/sensor for Performance Enhancement of Controlled Distributed Parameter Systems.....	826
<i>Michael A. Demetriou</i>	
Zero Dynamics Inverse Design for Asymptotic Regulation of the Heat Equation: The Non-Colocated Case.....	832
<i>Christopher I. Byrnes, David S. Gilliam</i>	
Control, Estimation and Optimization of Energy Efficient Buildings.....	837
<i>Jeff Borggaard, John A Burns, Amit Surana, Lizette Zietsman</i>	
Variance Amplification in Channel Flows of Strongly Elastic Polymer Solutions	842
<i>Mihailo Jovanovic, Satish Kumar</i>	
Iterative Design of Suboptimal Feedback Control for Bilinear Parabolic PDE Systems.....	848
<i>Chao Xu, Eugenio Schuster</i>	

WEB06

DISTRIBUTED CONTROL SYSTEMS

The Operator Algebra of Almost Toeplitz Matrices and the Optimal Control of Large-Scale Systems.....	854
<i>Makan Fardad</i>	

Approximation Methods and Spatial Interpolation in Distributed Control Systems	860
<i>Nader Motee, Ali Jadbabaie</i>	
Distributed Estimation and Control Under Partially Nested Pattern	866
<i>Ather Gattami</i>	
The Online Oujia Board : a Testbed for Multi-party Control of Dynamical Systems	872
<i>Jerome Barral, Robert Wilson, Cedric Langbort</i>	
A Convex Parameterization of All Stabilizing Controllers for Non-Strongly Stabilizable Plants, under Quadratically Invariant Sparsity Constraints	878
<i>Serban Sabau, Nuno C. Martins</i>	
Dynamic Dual Decomposition for Distributed Control	884
<i>Anders Rantzer</i>	

WEB07

CONTROL APPLICATIONS I

Adaptive Temperature Control of a Household Refrigerator	889
<i>Massimiliano Di Felice, Luigi Piroddi, Alberto Leva, Alessandro Boer</i>	
Decentralized Energy-Based Hybrid Control for the Multi-RTAC System	895
<i>Jevon Avis, Sergey G. Nersesov, Rungun Nathan</i>	
H_{∞} Unwinding Web Tension Control of a Strip Processing Plant Using a Pendulum Dancer	901
<i>Vincent Gassmann, Dominique Knittel, Prabhakar R. Pagilla, Marie-Ange Bueno</i>	
Data Mining Based Feedback Regulation in Operation of Hematite Ore Mineral Processing Plant	907
<i>Jinliang Ding, Chen Qi, Tianyou Chai, Hong Wang, Chun-Yi Su</i>	
Nonlinear Control Design for an Air-Breathing Engine with State Estimation	913
<i>Jagannath Rajasekaran, Arnab Maity, Radhakant Padhi, Amit Lal</i>	
Tracking and Set-Point VFO Control for an Articulated Mobile Robot with On-Axle Hitched Trailer	919
<i>Maciej Michalek, Krzysztof R. Kozłowski</i>	

WEB08

ITERATIVE LEARNING CONTROL: THEORY, DESIGN, AND APPLICATION II

Iterative Learning Control Using a Basis Signal Library	925
<i>David Hoelzle, Andrew G. Alleyne, Amy Wagoner Johnson</i>	
Model Inverse Based Iterative Learning Control Using Finite Impulse Response Approximations	931
<i>Benjamin Fine, Sandipan Mishra, Masayoshi Tomizuka</i>	
Fractional Order Periodic Adaptive Learning Compensation for Cogging Effect in PMSM Position Servo System	937
<i>Ying Luo, Yangquan Chen, Hyo-Sung Ahn, Youguo Pi</i>	
Iterative Learning Control with Saturation Constraints	943
<i>Sandipan Mishra, Ufuk Topcu, Masayoshi Tomizuka</i>	
Repetitive Process Based Iterative Learning Control Designed by LMIs and Experimentally Verified on a Gantry Robot	949
<i>Lukasz Hladowski, Zhonglun Cai, Krzysztof Galkowski, Eric Rogers, Christopher T. Freeman, Paul L. Lewin, Wojciech Paszke</i>	
Robust Stability for Iterative Learning Control	955
<i>Richard Stephen Bradley, Mark French</i>	

WEB09

MODELING AND CONTROL OF NANOPositionING AND SPM SYSTEMS

High-Speed High-Precision Control of Atomic Force Microscope by Surface Topography Learning Observer	961
<i>Takayuki Shiraishi, Hiroshi Fujimoto</i>	
Modeling and Compensation of Asymmetric Hysteresis in a Piezo Actuated Metrological AFM	967
<i>Roel Merry, Mustafa Uyanik, René Van De Molengraft, Richard Koops, Marijn Van Veghel, Maarten Steinbuch</i>	
Improvement of Accuracy and Speed of a Commercial AFM Using Positive Position Feedback Control	973
<i>Iskandar A. Mahmood, S. O. Reza Moheimani</i>	
Classification of Dynamic Atomic Force Microscopy Control Modes Based on Asymptotic Nonlinear Mechanics	979
<i>Sergey Belikov, Sergei Magonov</i>	
Detection of Local Stiffness and Piezoelectric Properties of Materials via Piezoresponse Force Microscopy	985
<i>Amin Salehi-Khojin, Saeid Bashash, Nader Jalili, Gary Lee Thompson, Vertegel Alexey</i>	

High Speed Force-Volume Mapping Using Atomic Force Microscope	991
<i>Kyong-Soo Kim, Qingze Zou</i>	

WEB10

BIOLOGICAL AND BIOINSPIRED SYSTEMS

Stochastic Control of Population Dynamics Using Kalman Filtering with Applications to Artificial Muscle Recruitment	997
<i>Lael Odhner, H. Harry Asada</i>	
Fuzzy Ant Colony Optimization for Optimal Control	1003
<i>Jelmer Marinus Van Ast, R. Babuska, Bart De Schutter</i>	
Elastance Control of a Mock Circulatory System for Ventricular Assist Device Test	1009
<i>Yih-Choung Yu, Sriram Gopalakrishnan</i>	
Human Eye Movement with and without the Listing's Constraint	1015
<i>Rochana Meegaskumbura, Bijoy Ghosh, Mervyn Parakrama B. Ekanayake</i>	
Swarm Coordination under Conflict	1021
<i>Daniel Alfonso Sierra Bueno, Paul McCullough, Eldridge Adams, Nejat Olgac</i>	
A Nonlinear Observer for an Activated Sludge Wastewater Treatment Process	1027
<i>Boulaid Boulkroune, Mohamed Darouach, Michel Zasadzinski, Serge Gillé</i>	

WEB11

OPTIMAL CONTROL II

Approximate Solution of Hyper-Sensitive Optimal Control Problems Using Finite-Time Lyapunov Analysis	1034
<i>Erkut Aykutlug, Kenneth D. Mease</i>	
Discounted Cost Infinite Time Horizon Cumulant Control	1040
<i>Ronald Diersing, Chang-Hee Won, Michael K. Sain</i>	
Direct Frequency Response Function Based, Uncertainty Accommodating Optimal Controller Design	1046
<i>Matthew Holzel, Seth L. Lacy, Vit Babuska, Dennis S. Bernstein</i>	
Air Flow Control in Fuel Cell Systems: An Extremum Seeking Approach	1052
<i>Yiyao(Andy) Chang, Scott Moura</i>	
The Effect of Pharmacokinetics on Optimal Protocols for a Mathematical Model of Tumor Anti-Angiogenic Therapy	1060
<i>Urszula Ledzewicz, Yi Liu, Heinz M. Schattler</i>	

WEB12

SWITCHED SYSTEMS I

Semistability of Switched Linear Systems	1066
<i>Qing Hui, Wassim M. Haddad</i>	
Reliable Stabilization and H-infinity Control for Switched Systems with Faulty Actuators: An Average Dwell Time Approach	1072
<i>Li-Li Li, Jiaxin Feng, Georgi M Dimirovski, Jun Zhao</i>	
Bumpless Transfer for Discrete-Time Switched Systems	1078
<i>Ivan Mallocci, Laurentiu Hetel, Jamal Daafouz, Claude Iung, Remy Bonidal</i>	
Efficient Suboptimal Solutions of Switched LQR Problems	1084
<i>Wei Zhang, Alessandro Abate, Jianghai Hu</i>	
Robust Controller Interpolation Via Convex Optimization	1092
<i>Brandon Hancey, Andrew G. Alleyne</i>	
Controller Architectures for Switching	1098
<i>Henrik Niemann, Niels Kjolstad Poulsen</i>	

WEB13

VEHICLE DIAGNOSTICS AND SAFETY

Estimation of Road Friction for Enhanced Active Safety Systems: Algebraic Approach	1104
<i>Changsun Ahn, Huei Peng, Eric Tseng</i>	
Estimation of Road Friction for Vehicle Active Safety Systems: Dynamic Approach	1110
<i>Changsun Ahn, Huei Peng, Eric Tseng</i>	

Model-Based Fault Diagnosis for a Vehicle Chassis System	1116
<i>Xian Zhang, Pierluigi Pisu</i>	
Diesel Engine Emissions Prediction Using Parallel Neural Networks	1122
<i>Bastian Maass, Richard Stobart, Jiamei Deng</i>	
Model-Based Adaptive Observers for Intake Leakage Detection in Diesel Engines	1128
<i>Riccardo Ceccarelli, Carlos Canudas De Wit, Philippe Moulin, Antonio Sciarretta</i>	
Development of a Scheme to Detect the Severity of Leaks in an Air Brake System	1134
<i>Srivatsan Ramarathnam, Sandeep Dhar, Swaroop Darbha, K. R. Rajagopal</i>	

WEB15
LINEAR SYSTEMS AND CONTROL

Modal Participation Factors Revisited: One Definition Replaced by Two	1140
<i>Eyad H. Abed, Munther Hassouneh, Wael A. Hashlamoun</i>	
A Spectral Lyapunov Function for Exponentially Stable LTV Systems	1146
<i>J. Jim Zhu, Yong Liu, Rui Huang</i>	
Reach Control on Simplicies by Continuous State Feedback	1154
<i>Mireille E. Broucke</i>	
Output Linear Controller for a Class of Nonlinear Systems Using the Invariant Ellipsoid Technique	1160
<i>Salvador Gonzalez Garcia, Andrey Polyakov, Alexander S. Poznyak</i>	
Observability Brunovsky Normal Form: Multi-Output Linear Dynamical Systems	1166
<i>Driss Boutat, Jean Pierre Barbot, Frederic Kratz</i>	
Finite-Time Control for Linear Discrete-Time Systems with Input Constraints	1171
<i>Hiroyuki Ichihara, Hitoshi Katayama</i>	

WEB16
ESTIMATION II

Necessary and Sufficient Conditions for the Observability of Linear Motion Quantities in Strapdown Navigation Systems	1177
<i>Pedro T. M. Batista, Carlos Silvestre, Paulo Jorge Oliveira</i>	
State Estimation for Linear Impulsive Systems	1183
<i>Enrique Medina, Douglas A. Lawrence</i>	
Sliding-Mode Observers for Uncertain Systems	1189
<i>Karanjit Kalsi, Jianming Lian, Stefen Hui, Stanislaw H. Zak</i>	
Unknown Input Estimation for a Class of Nonlinear Systems and Its Application to Automotive Engine Controls	1195
<i>Chia-Shang Liu, Pingan He</i>	
A Novel Interacting Multiple Model Algorithm Based on Multi-Sensor Optimal Information Fusion Rule	1201
<i>Xiaoyan Fu, Yingmin Jia, Junping Du, Shiyong Yuan</i>	
Modeling and Torque Estimation of an Automotive Dual Mass Flywheel	1207
<i>Ulf Schaper, Oliver Sawodny, Tobias Mahl, Uli Blessing</i>	

WEB17
CONSTRAINED CONTROL I

Further Tracking Results for Input-Constrained Minimum-Phase Systems	1213
<i>Fouad Giri, Elayachi Chater, F. Z. Chaoui, Jean-Baptiste Gning</i>	
Analysis of Linear Systems Using Truncated Ellipsoids	1219
<i>Thomas Thibodeau, Tingshu Hu</i>	
Stability and Performance Analysis for Input and Output-Constrained Linear Systems Subject to Multiplicative Neglected Dynamics	1225
<i>Giórgio Valmórbida, Sophie Tarbouriech, Germain Garcia, Jean-Marc Biannic</i>	
State Feedback Design for Input-Saturating Nonlinear Quadratic Systems	1231
<i>Giórgio Valmórbida, Sophie Tarbouriech, Germain Garcia</i>	
Vibration Suppression Control for a Structural System using an AMD with Restricted Stroke	1237
<i>Kazunobu Yoshida, Itaru Matsumoto</i>	

Stability and H_∞ Control for Discrete-Time Singular Systems Subject to Actuator Saturation	1244
<i>Shuping Ma, El-Kebir Boukas</i>	

WEB18

ADAPTIVE CONTROL THEORY

Inverse Optimal Adaptive Control - the Interplay between Update Laws, Control Laws, and Lyapunov Functions	1250
<i>Miroslav Krstic</i>	
Stable Certainty Equivalence Adaptive Control Using Normalized Parameter Adjustment Laws.....	1256
<i>Jovan D. Boskovic</i>	
Certainty Equivalence Adaptive Control of Plants with Unmatched Uncertainty Using State Feedback.....	1262
<i>Jovan D. Boskovic, Zhuo Han</i>	
Immersion and Invariance Adaptive Control of Nonlinearly Parameterized Nonlinear Systems	1268
<i>Xiangbin Liu, Romeo Ortega, Hongye Su, Jian Chu</i>	
Adaptive Control of Linear Periodic Systems.....	1274
<i>Zhiling Tian, Kumpati S. Narendra</i>	
Stable Algorithms for Multiset Canonical Correlation Analysis	1280
<i>Mohammed A. Hasan</i>	

WEB19

COOPERATIVE CONTROL II

On the Trajectories and Coordination of Steered Particles with Time-Periodic Speed Profiles.....	1286
<i>Daniel Swain, Naomi Ehrlich Leonard</i>	
A Transformation for a Heterogenous, Multiple Depot, Multiple Traveling Salesman Problem.....	1292
<i>Paul Oberlin, Sivakumar Rathinam, Swaroop Darbha</i>	
Consensus Problems with Directed Markovian Communication Patterns.....	1298
<i>Ion Matei, Nuno C. Martins, John S. Baras</i>	
Robust Adaptive Markov Decision Processes in Multi-Vehicle Applications	1304
<i>Luca F. Bertuccelli, Brett Bethke, Jonathan P. How</i>	
Motion Coordination through Cooperative Payload Transport	1310
<i>He Bai, John T. Wen</i>	
Communication-Aware Navigation Functions for Cooperative Target Tracking	1316
<i>Alireza Ghaffarkhah, Yasamin Mostofi</i>	

WEB20

ROBOTIC APPLICATIONS

Stability and Tracking Properties in Predictive Control with Adaptation for Bilateral Teleoperation.....	1323
<i>Kouei Yoshida, Toru Namerikawa</i>	
Behavior Recognition in Mobile Robots Using Symbolic Dynamic Filtering and Language Measure	1329
<i>Goutham Mallapragada, Asok Ray</i>	
Modeling, Identification and Servo Control of Magnetic Medical Manipulator	1335
<i>Ilker Tunay, Pablo Yoon</i>	
Direct Lyapunov Approach for Tracking Control of Underactuated Mechanical Systems	1341
<i>Warren N. White, Jaspen Patenaude, Mikil Foss, Deyka Garcia</i>	
Robust Stabilization of Nonholonomic Moving Robots with Uncalibrated Visual Parameters	1347
<i>Chaoli Wang, Zhenying Liang</i>	
Path Tracking and Obstacle Avoidance for Redundant Robotic Arms Using Fuzzy NMPC.....	1353
<i>Ashkan Mohammadzadeh Jasour, Mohammad Farrokhi</i>	

WEC01

AUTOMOTIVE SYSTEMS

Modular Discrete Optimal MIMO Controller for a VCT Engine	1359
<i>Melih Cakmakci, A. Galip Ulsoy</i>	
Model Predictive Control Allocation - Design and Experimental Results on a Thermal Management System.....	1365
<i>Christopher Vermillion, Jing Sun, Kenneth R. Butts</i>	

Effect of Pump Selection on Fuel Economy in a Dual Clutch Transmission Vehicle	1371
<i>Rahul Ahlawat, Hosam K. Fathy, Chengyun Guo, Byungchan Lee, Jeffrey L. Stein, Dohoy Jung</i>	
Modeling, Analysis, and Optimal Design of the Automotive Transmission Ball Capsule System	1379
<i>Xingyong Song, Mohd Azrin Mohd Zulkefli, Zongxuan Sun, Hsu-Chiang Miao</i>	
H_{∞} Robust Control of Active Suspensions: A Practical Point of View	1385
<i>Mohammad Saber Fallah, Rama Bhat, Wenfang Xie</i>	
Modeling and Tracking Control of a Hydrostatic Dynamometer	1391
<i>Yu Wang, Zongxuan Sun, Kim A. Stelson</i>	

WEC02
APPLIED FRACTIONAL CALCULUS IN CONTROLS

Fractional Order Control - A Tutorial	1397
<i>Yangquan Chen, Ivo Petras, Dingyu Xue</i>	
Fractional-Order [Proportional Derivative] Controller for Robust Motion Control: Tuning Procedure and Validation	1412
<i>Ying Luo, Yangquan Chen</i>	
Fractional Order Networked Control Systems and Random Delay Dynamics: A Hardware-In-The-Loop Simulation Study	1418
<i>Shayok Mukhopadhyay, Yiding Han, Yangquan Chen</i>	
Robust Path Planning for Mobile Robot Based on Fractional Attractive Force	1424
<i>Pierre Melchior, Brahim Metoui, Slaheddine Najjar, Mohamed Naceur Abdelkrim, Alain Oustaloup</i>	
Solution of Fractional Order Optimal Control Problems Using SVD-Based Rational Approximations	1430
<i>Christophe Tricaud, Yangquan Chen</i>	

WEC03
MOTION CONTROL FOR MOBILE ROBOTS: COVERAGE, FORMATION AND ROUTING

A Distributed Dynamical Scheme for Fastest Mixing Markov Chains	1436
<i>Michael M. Zavlanos, Daniel E. Koditschek, George J. Pappas</i>	
Specification and Planning of UAV Missions: A Process Algebra Approach	1442
<i>Sertac Karaman, Steven Rasmussen, Derek B. Kingston, Emilio Frazzoli</i>	
A Distributed Deterministic Annealing Algorithm for Limited-Range Sensor Coverage	1448
<i>Andrew Kwok, Sonia Martinez</i>	
Dynamic Vehicle Routing with Moving Demands - Part I: Low Speed Demands and High Arrival Rates	1454
<i>Shaunak D. Bopardikar, Stephen L. Smith, Francesco Bullo, Joao P. Hespanha</i>	
Global Formation-Shape Stabilization of Relative Sensing Networks	1460
<i>Jorge Cortes</i>	
Dynamic Vehicle Routing with Moving Demands - Part II: High Speed Demands or Low Arrival Rates	1466
<i>Stephen L. Smith, Shaunak D. Bopardikar, Francesco Bullo, Joao P. Hespanha</i>	

WEC04
COORDINATED AND QUANTUM CONTROL

Coherent H Infinity Control for a Class of Linear Complex Quantum Systems	1472
<i>Aline I. Maalouf, Ian R. Petersen</i>	
Geometries of Single-Input Locally Accessible Control Systems	1480
<i>Kai Hoeffner, Martin Guay</i>	
Control Scheme for Human-Robot Co-Manipulation of Uncertain, Time-Varying Loads	1485
<i>Stefan Lichardopol, Nathan Van De Wouw, Hendrik Nijmeijer</i>	
Synchronization Preservation Under Linear Polynomial Modifications	1491
<i>Dan Becker-Bessudo, Guillermo Fernandez-Anaya, Jose-Job Flores-Godoy</i>	
Particle Swarm-Assisted State Feedback Control: From Pole Selection to State Estimation	1493
<i>Jiuguang Wang, Benjamin Brackett, Ronald Harley</i>	

Global Feedback Stabilization of Quantum Noiseless Subsystems	1499
<i>Kazunori Nishio, Kenji Kashima, Jun-Ichi Imura</i>	

WEC05

DISTRIBUTED PARAMETER SYSTEMS II

Adaptive Control of an Anti-Stable Wave PDE	1505
<i>Miroslav Krstic</i>	
Boundary Control of an Anti-Stable Wave Equation with Anti-Damping on the Uncontrolled Boundary	1511
<i>Andrey Smyshlyaev, Miroslav Krstic</i>	
Dynamic Fault Detection and Accommodation for Dissipative Distributed Processes	1517
<i>Antonios Armaou, Michael A. Demetriou</i>	
Actuator Fault Detection and Reconfiguration in Distributed Processes with Measurement Sampling Constraints	1523
<i>Sathyendra Ghantasala, Nael H. El-Farra</i>	
Mixing Enhancement in 2D Magneto hydrodynamic Channel Flow by Extremum Seeking Boundary Control	1530
<i>Lixiang Luo, Eugenio Schuster</i>	
Lagrangian Sensing: Distributed Traffic Estimation with Mobile Devices	1536
<i>Daniel B. Work, Olli-Pekka Tossavainen, Quinn Jacobson, Alexandre M. Bayen</i>	

WEC06

CONTROL OF COMMUNICATION NETWORKS

A Q-Learning Model-Independent Flow Controller for High-speed Networks	1544
<i>Xin Li, Georgi M Dimirovski, Yuanwei Jing, Si-Ying Zhang</i>	
Understanding Phase Transition in Communication Networks to Enable Robust and Resilient Control.....	1549
<i>Soumik Sarkar, Kushal Mukherjee, Abhishek Srivastav, Asok Ray</i>	
A Decentralized H_∞ Routing Control Strategy for Mobile Networked Multi-Agents	1555
<i>Farzaneh Abdollahi, Khashayar Khorasani</i>	
Controlled Hopwise Averaging: Bandwidth/Energy-Efficient Asynchronous Distributed Averaging for Wireless Networks	1561
<i>Choon Yik Tang, Jie Lu</i>	
Power Control for Cellular Communications with Channel Uncertainties	1569
<i>Sankrith Subramanian, John Shea, Warren E. Dixon</i>	
AQM Algorithm Based on Kelly's Scheme Using Sliding Mode Control	1575
<i>Nannan Zhang, Georgi M Dimirovski, Yuanwei Jing, Si-Ying Zhang</i>	

WEC07

CONTROL APPLICATIONS II

Comparison of SISO and MIMO Control Techniques for a Diagonally Dominant Vapor Compression System	1580
<i>Neera Jain, Andrew G. Alleyne</i>	
Passivity Based Control of Drum Boiler	1586
<i>Chengtao Wen, B. Erik Ydstie</i>	
On Approximate Dynamic Inversion and Proportional-Integral Control.....	1592
<i>Justin Teo, Jonathan P. How, Eugene Lavretsky</i>	
Real-Time Fault-Tolerant Control of a Reverse Osmosis Desalination Plant Based on a Hybrid System Approach	1598
<i>Adrian Gambier, Nikolaus Bluemel, E. Badreddin</i>	
Analytical H-Infinity Design for a Smith-Type Inverse-Response Compensator	1604
<i>Salva Alcántara, Carles Pedret, Ramon Vilanova, Weidong Zhang</i>	
Leader-Follower Dynamics for Unicycles.....	1610
<i>Siming Zhao, Abhishek Halder, Tamas Kalmar-Nagy</i>	

WEC08

ITERATIVE LEARNING CONTROL

Optimal Performance Trade-Offs in Repetitive Control: Experimental Validation on an Active Air Bearing Setup.....	1616
<i>Goele Pipeleers, Bram Demeulenaere, Farid Al-Bender, Joris De Schutter, Jan Swevers</i>	
Monotonically Convergent Iterative Learning Control for Uncertain Time-Delay Systems: An LMI Approach.....	1622
<i>Deyuan Meng, Yingmin Jia, Junping Du, Fashan Yu</i>	

Global Learning Controls for Uncertain Relative Degree One Linear Systems: A Comparative Study	1628
<i>Manuel Cugliari, Riccardo Marino, Patrizio Tomei, Cristiano Maria Verrelli</i>	
Iterative Learning Control with High-Order Internal Model for Linear Time-Varying Systems	1634
<i>Chunping Liu, Jian-Xin Xu, Jun Wu</i>	
Terminal Iterative Learning Control Design with Singular Value Decomposition Decoupling for Thermoforming Ovens	1640
<i>Guy Gauthier, Benoit Boulet</i>	
Multiresolution State-Space Discretization Method for Q-Learning	1646
<i>Amanda Lampton, John Valasek</i>	

WEC09

FEEDFORWARD CONTROL OF NANOPositionING AND SPM SYSTEMS

Control-Based Approach to Broadband Viscoelasticity Spectroscopy: PDMS Example	1652
<i>Zhonghua Xu, Qingze Zou, Pranav Shrotriya, Ping Xie</i>	
An Iterative Based Feedforward-Feedback Control Approach to High-Speed AFM Imaging	1658
<i>Ying Wu, Qingze Zou</i>	
Two Degree of Freedom Control for Nanopositioning Systems: Fundamental Limitations, Control Design, and Related Trade-Offs	1664
<i>Chibum Lee, Srinivasa Salapaka</i>	
Theory for Image-Based Identification of SPM Dynamics	1670
<i>Garrett Clayton, Santosh Devasia</i>	
Time-Domain Adaptive Feed-Forward Control of Nanopositioning Systems with Periodic Inputs	1676
<i>Andrew J. Fleming</i>	
LQG-Based Tracking of Multiple Fluorescent Particles in Two-Dimensions in a Confocal Microscope	1682
<i>Zhaolong Shen, Sean Andersson</i>	

WEC10

SYSTEMS BIOLOGY

Solution of Inverse Problems for Obtaining Protein Concentrations from Fluorescent Microscopy Images	1688
<i>Zuyi (Jacky) Huang, Fatih Senocak, Arul Jayaraman, Juergen Hahn</i>	
Polynomial-Time Controllability Analysis of Boolean Networks	1694
<i>Koichi Kobayashi, Jun-Ichi Imura, Kunihiko Hiraishi</i>	
Graph-Theoretic Topological Control of Biological Genetic Networks	1700
<i>Anil Aswani, Nicholas Boyd, Claire J. Tomlin</i>	
Gene Regulation Models and Evolution	1706
<i>Mohammed Sami Fadali, Michael Savageau</i>	
Reducing Noise through Translational Control in an Auto-Regulatory Gene Network	1712
<i>Abhyudai Singh, Joao P. Hespanha</i>	

WEC11

OPTIMAL CONTROL III

Linear Quadratic Optimal Control of Contact Transition with Fingertip	1718
<i>Weiwei Li, Francisco Valero-Cuevas</i>	
Convex Initialization of the H2-Optimal Static Output Feedback Problem	1724
<i>Henrik Manum, Sigurd Skogestad, Johannes Ernst Peter Jäschke</i>	
An Approximation Algorithm for a 2-Depot, Heterogeneous Vehicle Routing Problem	1730
<i>Sai Krishna Yadlapalli, Sivakumar Rathinam, Swaroop Darbha</i>	
Hierarchical Least Squares Optimal Control of 2-D Systems	1736
<i>Per-Ole Nyman</i>	
A Further Result on the Optimal Harmonic Gait for Locomotion of Mechanical Rectifier Systems	1742
<i>Justin Blair, Tetsuya Iwasaki</i>	

Stability and L2 Gain Analysis for the Particle Swarm Optimization Algorithm	1748
<i>Yuji Wakasa, Kanya Tanaka, Takuya Akashi</i>	

WEC12

SWITCHED SYSTEMS II

Stability of Feedback Switched Systems with State and Switching Delays.....	1754
<i>Linh Vu, Kristi A. Morgansen</i>	
Multi-Controller Design Under Uncontrolled and Controlled Switching.....	1760
<i>Shengxiang Jiang, Joao P. Hespanha</i>	
Observability Normal Forms for a Class of Switched Systems with Zeno Phenomena	1766
<i>Lei Yu, Jean Pierre Barbot, Driss Boutat, Djamil Benmerzouk</i>	
Stability Analysis for 2-Dimensional Switched Linear Systems.....	1772
<i>Satoshi Nishiyama, Tomohisa Hayakawa</i>	
Stabilization of Switched Nonlinear Systems Using Multiple Lyapunov Function Method.....	1778
<i>Min Wang, Jiaxin Feng, Georgi M Dimirovski, Jun Zhao</i>	
Robust Tracking Control of a Class of Nonlinear Switched Systems: An Average Dwell-Time Method	1783
<i>Min Wang, Georgi M Dimirovski, Jun Zhao</i>	

WEC13

MOBILE AND VEHICLE SYSTEMS

Source Seeking for a Joukowski Foil Model of Fish Locomotion	1788
<i>Jennie Cochran, Scott Kelly, Hailong Xiong, Miroslav Krstic</i>	
Control of Many Robots Moving in the Same Direction with Different Speeds: A Decoupling Approach	1794
<i>David Devon, Timothy Bretl</i>	
Identification and Monitoring of Automotive Engines	1800
<i>Wallace E. Larimore, Hossein Javaherian</i>	
Source Seeking for a Three-Link Model of Fish Locomotion	1808
<i>Jennie Cochran, Eva Kanso, Miroslav Krstic</i>	
Distributed Load Balancing Over Directed Network Topologies	1814
<i>Alejandro Gonzalez-Ruiz, Yasamin Mostofi</i>	
Impact of Heterogeneous Link Qualities and Network Connectivity on Binary Consensus	1821
<i>Yasamin Mostofi, Ye Yuan</i>	

WEC15

STABILITY OF LINEAR SYSTEMS

Complexity of Checking the Existence of a Stabilizing Decentralized Controller	1827
<i>Javad Lavaei, Somayeh Sojoudi</i>	
A Characterisation of the Hurwitz Stability of Metzler Matrices	1833
<i>Kumpati S. Narendra, Robert Shorten</i>	
Properties of the Parametric Lyapunov Equation Based Low Gain Design with Applications in Stabilization of Time-Delay Systems	1838
<i>Bin Zhou, Zongli Lin, Guang-Ren Duan</i>	
Delay-Dependent State-Derivative Feedback with an -Stability Constraint for Time-Delay Systems	1844
<i>Yuanwei Jing, Chao Shen, Georgi M Dimirovski, Nan Jiang</i>	
PID Controller Synthesis with Shifted Axis Pole Assignment for a Class of MIMO Systems.....	1849
<i>A. N. Gundes, Tsu-Shuan Chang</i>	
Stability Analysis of Positive Feedback Interconnections of Negative Imaginary Systems	1855
<i>Junlin Xiong, Ian R. Petersen, Alexander Lanzon</i>	

WEC16

FILTERING AND ESTIMATION

An Extension of Sigma-Point Kalman Filtering Using Nonlinear Estimator Bases	1861
<i>Timothy J. Wheeler, Andrew K. Packard</i>	
The Unscented Kalman Filtering in Extended Noise Environments	1865
<i>Yucheng Zhou, Jiahe Xu, Yuanwei Jing, Georgi M Dimirovski</i>	

A Parameterization of Observer-Based Controllers: Bumpless Transfer by Covariance Interpolation	1871
<i>Jakob Stoustrup, Mohammad Komareji</i>	
A New Nonlinear-Filter-Based Modulation/Demodulation Technique for Chaotic Communication	1876
<i>Xin Wang, Edwin Yaz</i>	
Distributed Information Filtering Using Consensus Filters	1882
<i>David W. Casbeer, Randy Beard</i>	
A Robust Extended Kalman Filter for Discrete-Time Systems with Uncertain Dynamics, Measurements and Correlated Noise	1888
<i>Rodrigo Fontes Souto, João Yoshiyuki Ishihara, Geovany A. Borges</i>	

WEC17

CONSTRAINED CONTROL II

Global Asymptotic and Finite-Gain L2 Stabilization of Port-Controlled Hamiltonian Systems Subject to Actuator Saturation	1894
<i>Weiwei Sun, Zongli Lin, Yuzhen Wang</i>	
Analysis and Controller Design of Discrete-Time Linear Systems with State Saturation	1899
<i>Wei Guan, Guang-Hong Yang</i>	
Scheduled Controllers for Linear Systems with Bounded Actuators: Slab Condition	1905
<i>Faryar Jabbari, Solmaz Sajjadi-Kia</i>	
Analysis of Oscillation and Stability for Systems with Piecewise Linear Components Via Saturation Functions	1911
<i>Tingshu Hu, Thomas Thibodeau, Andrew R. Teel</i>	
A Quadratic Stability Result for Singular Switched Systems with Application to Anti-Windup Control	1917
<i>Robert Shorten, Martin J. Corless, Richard H. Middleton, Steffi Klinge, Kai Wulff</i>	
Analysis of Periodic Motions in Relay Feedback Systems with Saturation in Plant Dynamics	1923
<i>Igor Boiko, Nikolay Faldin, Alexander Morzhov</i>	

WEC18

ROBUST ADAPTIVE CONTROL

Composite Adaptive Control for Systems with Additive Disturbances	1928
<i>Parag Patre, William Mackunis, Marcus Johnson, Warren E. Dixon</i>	
Stability Overlay for Adaptive Control Laws Applied to Linear Time-Invariant Systems	1934
<i>Paulo Andre Nobre Rosa, Jeff S. Shamma, Carlos Silvestre, Michael Athans</i>	
Robust Adaptive Control of a Class of Nonlinearly Parameterized Time-Varying Uncertain Systems	1940
<i>Jing Wang</i>	
Extremum Seeking with Very Slow or Drifting Sensors	1946
<i>Nima Ghods, Miroslav Krstic</i>	
Decentralized Output-Feedback Control of Large-Scale Nonlinear Systems Based on High-Gain Multiple Time Scaling	1952
<i>Prashanth Krishnamurthy, Farshad Khorrami</i>	
Integrated Estimator and L1 Adaptive Controller for Well Drilling Systems	1958
<i>Zhiyuan Li, Naira Hovakimyan, Chengyu Cao, Glenn-Ole Kaasa</i>	

WEC19

AGENT-BASED SYSTEMS I

Bayesian-Based Decision Making for Object Search and Characterization	1964
<i>Yue Wang, Islam Hussein</i>	
Sequential Localization with Inaccurate Measurements	1970
<i>Jia Fang, Dominique Duncan, A. Stephen Morse</i>	
Distributed PageRank Computation with Link Failures	1976
<i>Hideaki Ishii, Roberto Tempo</i>	
Scheduling for Finite Time Consensus	1982
<i>Chih-Kai Ko, Ling Shi</i>	
Load Balancing Over Heterogeneous Networks with Gossip-Based Algorithms	1987
<i>Mauro Franceschelli, Alessandro Giua, Carla Seatzu</i>	

Rapidly Convergent Leader-Enabled Multi-Agent Deployment Into Planar Curves	1994
<i>Paul Frihauf, Miroslav Krstic</i>	

WEC20
ROBOTICS

Nonlinear Adaptive H-Infinity Control of Constrained Robotic Manipulators with Input Nonlinearity	2000
<i>Yoshihiko Miyasato</i>	
Cure-Feature Based Online Trajectory Generation in a Robotic Paint Curing System	2006
<i>Fan Zeng, Beshah Ayalew, Mohammed Omar</i>	
Artificial Vector Fields for Robot Convergence and Circulation of Time-Varying Curves in N-Dimensional Spaces	2012
<i>Vinicius Mariano, Luciano Pimenta, Carlos Andrey Maia, Guilherme A. S. Pereira</i>	
On the Controllability of Fixed-Wing Perching	2018
<i>John W. Roberts, Rick Cory, Russ Tedrake</i>	
Control of Robotic Manipulators with Input/Output Delays	2024
<i>Nikhil Chopra</i>	
MABEL, a New Robotic Bipedal Walker and Runner	2030
<i>Jessy W. Grizzle, Jonathan Hurst, Benjamin Morris, Hae-Won Park, Koushil Sreenath</i>	

THA01
AUTOMOTIVE ENGINE CONTROL I

Modeling the Effect of Fuel Ethanol Concentration on Cylinder Pressure Evolution in Direct-Injection Flex-Fuel Engines	2037
<i>Nestor Hugo Oliverio, Li Jiang, Hakan Yilmaz, Anna G. Stefanopoulou</i>	
Idle Mode Control on a Combustion Engine Test Bench Via Internal Model Control	2045
<i>Engelbert Gruenbacher, Lorenzo Marconi</i>	
Smooth Switching between 2-Stroke and 4-Stroke Modes of HCCI Operation	2051
<i>Maxim V. Subbotin, Aleksandar Kojic, Sungbae Park, Jasim Ahmed, Nalin A. Chaturvedi, David James Cook</i>	
The POG Technique for Modelling Engine Dynamics Based on Electrical Analogy	2057
<i>Federica Grossi, Angelo Palladino, Roberto Zanasi, Giovanni Fiengo</i>	
Robust Engine Torque Control by Iterative Learning Control	2064
<i>Takashi Nagata, Masayoshi Tomizuka</i>	
Dynamic Engine Modeling through Linear Programming Support Vector Regression	2070
<i>Zhao Lu, Jing Sun, Dongkyoung Lee, Kenneth R. Butts</i>	

THA02
A TUTORIAL ON THE CONTROL OF WIND TURBINES AND WIND FARMS

A Tutorial on the Dynamics and Control of Wind Turbines and Wind Farms	2076
<i>Lucy Y. Pao, Kathryn Johnson</i>	
Wind Turbine Modeling Overview for Control Engineers	2090
<i>Patrick Moriarty, Sandy Butterfield</i>	
Control of Wind Turbines: Past, Present, and Future	2096
<i>Jason Laks, Lucy Y. Pao, Alan D. Wright Alan D. Wright</i>	
Wind Farm Control: Addressing the Aerodynamic Interaction among Wind Turbines	2104
<i>Kathryn Johnson, Naveen Thomas</i>	

THA03
POWER SYSTEMS I

Stabilization of Multimachine Power Systems Via Hybrid Control	2110
<i>Qing Hui, Wei Qiao</i>	
Some New Results on the Identification of Two-Area Power System Models with SVC Control	2116
<i>Aranya Chakraborty</i>	
Decentralized Control of Multimachine Power Systems	2122
<i>Karanjit Kalsi, Jianming Lian, Stanislaw H. Zak</i>	
Adaptive Robust H_∞ Control of the Generator Excitation System	2128
<i>Li-Ying Sun, Jiaxin Feng, Georgi M Dimirovski, Jun Zhao</i>	

On Sliding Mode and Adaptive Observers Design for Multicell Converter	2134
<i>Malek Ghames, Jean Pierre Barbot</i>	
Active Power Filter for Three-Phase Current Harmonic Cancellation and Reactive Power Compensation	2140
<i>Siyu Leng, Wenxin Liu, Il-Yop Chung, David A. Cartes</i>	

THA06
INFORMATION THEORY AND CONTROL

Stabilization and Performance Over a Gaussian Communication Channel for a Plant with Time Delay.....	2148
<i>James S. Freudenberg, Richard H. Middleton</i>	
On the Roles of Smoothing in Planning of Informative Paths.....	2154
<i>Han-Lim Choi, Jonathan P. How</i>	
Providing Quality of Service of Information through Mobility	2160
<i>Eric W. Frew</i>	
Exploiting Information Content in Relative Motion	2166
<i>Dhananjay Raghunathan, John Baillieul</i>	
Linear Quadratic Gaussian Control with Quantized Feedback	2172
<i>Minyue Fu</i>	
Stochastic Stabilization of a Noisy Linear System with a Fixed-Rate Adaptive Quantizer	2178
<i>Serdar Yuksel</i>	

THA07
APPLICATIONS I

Predicting Numbers of Performance Failures in the Manufacture of Dynamic Systems	2184
<i>Roger Fales</i>	
Performance Analysis of Split and Merge Production Systems.....	2190
<i>Yang Liu, Jingshan Li</i>	
Real-Time Dynamic Pricing for Multiproduct Models with Time-Dependent Customer Arrival Rates	2196
<i>Jr-Shin Li, Shuo Chen</i>	
Robust Codiagnosability of Discrete Event Systems	2202
<i>Joao Carlos Basilio, Stephane Lafortune</i>	
Robust Estimation of Base Sheet Ash During a Wet End Break, Scanner Warm up and Initialization.....	2210
<i>Amin Nobakhti, Hong Wang</i>	

THA08
NETWORKED SYSTEMS

On the Synchronization Problem for the Stabilization of Networked Control Systems Over Nondeterministic Networks.....	2216
<i>Paolo Varutti, Rolf Findeisen</i>	
Robustification and Optimization of a Kalman Filter with Measurement Loss Using Linear Precoding	2222
<i>Rainer Blind, Stefan Uhlich, Bin Yang, Frank Allgower</i>	
Multiagent Coverage Algorithms with Gossip Communication: Control Systems on the Space of Partitions	2228
<i>Paolo Frasca, Ruggero Carli, Francesco Bullo</i>	
Event-Predictive Control for Energy Saving of Wireless Networked Control System	2236
<i>Yutaka Iino, Takeshi Hatanaka, Masayuki Fujita</i>	
Output Agreement in High-Dimensional Multi-Agent Systems.....	2243
<i>Guangming Xie, Long Wang, Yingmin Jia</i>	

THA09
NANOPOSITIONING

A New Piezoelectric Tube Scanner for Simultaneous Sensing and Actuation.....	2249
<i>S. O. Reza Moheimani, Yuen Kuan Yong</i>	
Design Fabrication of High-Precision Stage and Ultrahigh-Speed Nanoscale Positioning	2254
<i>Koichi Sakata, Hiroshi Fujimoto, Atsushi Hara, Kazuaki Saiki</i>	
Robust Control of a Piezoelectric Stage Under Thermal and External Load Disturbances.....	2260
<i>Mohammad Motamedi, Seyed Mehdi Rezaei, Mohammad Zareinejad, Mozafar Saadat</i>	

Theoretical Bounds on a Non-Raster Scan Method for Tracking String-Like Samples	2266
<i>Peter Chang, Sean Andersson</i>	
Damping Mechanisms in Dynamic Mode Atomic Force Microscopy Applications	2272
<i>Makan Fardad, Mihailo Jovanovic, Murti V. Salapaka</i>	
High Speed Intermittent-Contact Mode Scanning Probe Microscopy Using Cantilevers with Integrated Electrostatic Actuator and Thermoelectric Sensor	2278
<i>Deepak R. Sahoo, Walter Haeberle, Peter Baechtold, Abu Sebastian, Haralampos Pozidis, Evangelos Eleftheriou</i>	

THA10 **BIOLOGICAL SYSTEMS II**

Robustness Properties of Optimal Insulin Bolus Administrations for Type 1 Diabetes	2284
<i>Harald Kirchsteiger, Luigi Del Re, Eric Renard, Margot Mayrhofer</i>	
Industrial Application of Nonlinear Model Predictive Control Technology for Fuel Ethanol Fermentation Process	2290
<i>James Bartee, Patrick Noll, Carl Schweiger, Bijan Sayyarodsari</i>	
A Generalized Multi-Strain Model of HIV Evolution with Implications for Drug-Resistance Management	2295
<i>Ruitao Luo, Michael J. Piovoso, Ryan Zurakowski</i>	
Microalgae Growth Modeling and Control for a Vertical Flat Panel Photobioreactor	2301
<i>Michael R. Buehner, Peter M. Young, Bryan Willson, David Rausen, Richard Schoonover, Guy R. Babbitt, Steve Bunch</i>	
Dissensus, Death and Division	2307
<i>Dario Bauso, Laura Giarre, Raffaele Pesenti</i>	
Stabilization of Chemostats Using Feedback Linearization and Reduction of Dimension	2313
<i>Ernest J. Barany, Mary Ballyk</i>	

THA11 **PREDICTIVE CONTROL FOR NONLINEAR SYSTEMS**

Distributed Model Predictive Control of Nonlinear Systems with Input Constraints	2319
<i>Panagiotis D. Christofides, Jinfeng Liu, David Muñoz de la Peña</i>	
Networked Predictive Control of Constrained Nonlinear Systems: Recursive Feasibility and Input-To-State Stability Analysis	2327
<i>Gilberto Pin, Thomas Parisini</i>	
Nonlinear Model Predictive Control of an Inverted Pendulum	2335
<i>Adam Mills, Adrian Wills, Brett Ninness</i>	
Robust Nonlinear Model Predictive Controller Design Based on Multi-Scenario Formulation	2341
<i>Rui Huang, Lorenz T. Biegler</i>	
Dataflow-Based Implementation of Model-Predictive Control	2343
<i>Ruirui Gu, Shuvra S. Bhattacharyya, William S. Levine</i>	
Optimal Specification of Sliding Mode Control Parameters for Unmanned Surface Vessel Systems	2350
<i>Lucas McNinch, Hashem Ashrafuon, Kenneth R. Muske</i>	

THA12 **SWITCHED SYSTEMS III**

H_∞ Static Output Feedback Control for Discrete-Time Switched Linear Systems with Average Dwell Time	2356
<i>Da-Wei Ding, Guang-Hong Yang</i>	
Fault Detection and Identification for Bimodal Piecewise Affine Systems	2362
<i>Nastaran Nayebpanah, Luis Rodrigues, Youmin Zhang</i>	
Robust Stability of Discrete-Time Switched Delay Systems and Its Application to Network-Based Reliable Control	2367
<i>Shi-Lu Dai, Hai Lin, Shuzhi Sam Ge</i>	
Stability of Uncertain Piecewise Affine Systems with Time-Delay	2373
<i>Kaveh Moezzi, Luis Rodrigues, Amir G. Aghdam</i>	
On the K-Switching Reachability Sets of Single-Input Positive Switched Systems	2379
<i>Maria Elena Valcher</i>	

Static Output Feedback Control for Discrete-Time Switched Linear Systems under Arbitrary Switching	2385
<i>Da-Wei Ding, Guang-Hong Yang</i>	

THA13

PATH PLANNING

Path Planning for Multiple Unmanned Aerial Vehicles by Parameterized Cornu-Spirals	2391
<i>Ran Dai, John Cochran</i>	
A Modified Dubins Method for Optimal Path Planning of a Miniature Air Vehicle Converging to a Straight Line Path	2397
<i>Sikha Hota, Debasish Ghose</i>	
Optimal Path-Planning under Finite Memory Obstacle Dynamics Based on Probabilistic Finite State Automata Models	2403
<i>Ishanu Chattopadhyay, Asok Ray</i>	
Automatic Path Planning and Control Design for Autonomous Landing of UAVs Using Dynamic Inversion	2409
<i>Shashiprakash Singh, Radhakant Padhi</i>	
Generalization of V* Path Planning for Accommodation of Amortized Dynamic Uncertainties in Plan Execution	2415
<i>Ishanu Chattopadhyay, Asok Ray</i>	
Optimal Path Planning for Uncertain Exploration	2421
<i>Andrew Klesh, Anouck Girard, Pierre T. Kabamba</i>	

THA14

ROBUST CONTROL I

Robust SISO Controller Order Reduction	2427
<i>Vahid Raissi Dehkordi, Benoit Boulet, Amir G. Aghdam</i>	
An Elementary Proof for the Exactness of (D,G) Scaling	2433
<i>Yoshio Ebihara</i>	
Generalized Real Perturbation Values with Applications to the Structured Real Controllability Radius of LTI Systems	2439
<i>Simon Lam, Edward J. Davison</i>	
Exploiting Sparsity in the Sum-of-Squares Approximations to Robust Semidefinite Programs	2445
<i>Tanagorn Jennawasin</i>	
From Poncelet's Invariance Principle to Active Disturbance Rejection	2451
<i>Gang Tian, Zhiqiang Gao</i>	
Computation of Uncertainty Distributions in Complex Dynamical Systems	2458
<i>Thordur Runolfsson, Chenxi Lin</i>	

THA15

MODELING AND CONTROL OF COMPLEX SPATIALLY DISTRIBUTED PROCESSES

Feedback Control of Dissipative PDE Systems in the Presence of Uncertainty and Noise Using Extended Kalman Filter	2464
<i>Sivakumar Pitchaiah, Antonios Armaou</i>	
Optimal Control of a Time-Varying Catalytic Fixed-Bed Reactor with Catalyst Deactivation	2470
<i>Leily Mohammadi Sardroud, Ilyasse Aksikas, J. Fraser Forbes</i>	
Model Predictive Control of Nonlinear Stochastic PDEs: Application to a Sputtering Process	2476
<i>Yiming Lou, Gangshi Hu, Panagiotis D. Christofides</i>	
Predictor-Like Feedback for Actuator and Sensor Dynamics Governed by Diffusion PDEs	2484
<i>Miroslav Krstic</i>	
Networked Control of Spatially Distributed Processes with Sensor-Controller Communication Constraints	2489
<i>Yulei Sun, Sathyendra Ghantasala, Nael H. El-Farra</i>	

Multiscale Modeling of Atomic Layer Deposition Processes	2495
<i>Raymond Adomaitis, Vivek Dwivedi</i>	

THA16

MODELING AND CONTROL OF HYPERSONIC VEHICLES. PART I: MODELLING

Control-Oriented Aerothermoelastic Modeling Approaches for Hypersonic Vehicles	2501
<i>Adam J. Culler, Jack McNamara, Andrew Crowell</i>	
An Overview on Dynamics and Controls Modelling of Hypersonic Vehicles	2507
<i>Michael Bolender</i>	
Control-Oriented Analysis of Thermal Gradients for a Hypersonic Vehicle	2513
<i>Sanketh Bhat, Richard C. Lind</i>	
Control-Relevant Modeling of Hypersonic Vehicles	2519
<i>Jerald M. Vogel, Atul Kelkar, George Inger, Christopher E. Whitmer, Alan Sidlinger, Armando A. Rodriguez</i>	
Flight Dynamic Characteristics of a Scramjet-Powered Generic Hypersonic Vehicle	2525
<i>Maj Dean Mirmirani, Matthew Kuipers, Jason Levin, Andrew Clark</i>	
Robust Nonlinear Control of a Hypersonic Aircraft in the Presence of Aerothermoelastic Effects	2533
<i>Zachary Wilcox, William Mackunis, Sanketh Bhat, Richard C. Lind, Warren E. Dixon</i>	

THA17

CONSTRAINED CONTROL III

Decentralized Control of Discrete-Time Linear Time Invariant Systems with Input Saturation	2539
<i>Ciprian Deliu, Babak Malek, Sandip Roy, Ali Saberi, Anton A. Stoorvogel</i>	
Recovery of Linear Performance in Feedback Systems with Nonlinear Instrumentation	2545
<i>Shinung Ching, Pierre T. Kabamba, Semyon M. Meerkov</i>	
Load Transfer Control for a Crane with State Constraints	2551
<i>Kazunobu Yoshida, Iharu Matsumoto</i>	
Adaptive Steady-State Target Optimization Using Iterative Modified Gradient-Based Methods in Linear Non-Square MPC	2558
<i>Leo Roger Edward Shead, Kenneth R. Muske, J. Anthony Rossiter</i>	
Analysis and Design of Output Feedback Control Systems in the Presence of Actuator Saturation	2564
<i>Wei Guan, Guang-Hong Yang</i>	
Adaptive Fault-Tolerant Output-Feedback Control of LTI Systems Subject to Actuator Saturation	2569
<i>Wei Guan, Guang-Hong Yang</i>	

THA18

ADAPTIVE SYSTEMS

Adaptive Tracking Controller for Systems with Unknown Long Delay and Unknown Parameters in the Plant	2575
<i>Delphine Bresch-Pietri, Miroslav Krstic</i>	
Robust Adaptive Optimal Control Modification with Large Adaptive Gain	2581
<i>Nhan Nguyen, Abraham K. Ishihara</i>	
Adaptive Nonlinear Control Allocation of Non-Minimum Phase Uncertain Systems	2587
<i>Fang Liao, Kai-Yew Lum, Jian Liang Wang, Mouhacine Benosman</i>	
An LMI-Based Stability Analysis for Adaptive Controllers	2593
<i>Bong-Jun Yang, Tansel Yucelen, Anthony J. Calise, Jong-Yeob Shin</i>	
Adaptive Disturbance Accommodating Controller for Uncertain Stochastic Systems	2599
<i>Jemin George, Puneet Singla, John L. Crassidis</i>	
Globally Stable Adaptive Formation Control of Euler-Lagrange Agents Via Potential Functions	2606
<i>Ademir Rodrigues Pereira, Liu Hsu, Romeo Ortega</i>	

THA19

COOPERATIVE CONTROL III

Cooperative Defensive Surveillance Using Unmanned Aerial Vehicles	2612
<i>Amir Matlock, Raymond Holsapple, Corey Schumacher, John Henry Hansen, Anouck Girard</i>	
Analysis of Actuator Faults in a Cooperative Team Consensus of Unmanned Systems	2618
<i>Elham Semsar Kazerooni, Khashayar Khorasani</i>	

A Hybrid Control Approach to Cooperative Target Tracking with Multiple Mobile Robots	2624
<i>Ying Lan, Gangfeng Yan, Zhiyun Lin</i>	
Experimental Validation of Cooperative Environmental Boundary Tracking with On-Board Sensors	2630
<i>Abhijeet Joshi, Trevor Ashley, Yuan (Rick) Huang, Andrea L. Bertozzi</i>	
A Transformation for a Multiple Depot, Multiple Traveling Salesman Problem.....	2636
<i>Paul Oberlin, Sivakumar Rathinam, Swaroop Darbha</i>	
Voronoi-based Coverage Optimization for Mobile Networks with Limited Sensing Range — A Directional Search Approach	2642
<i>John Stergiopoulos, Anthony Tzes</i>	

THA20

DYNAMICS AND CONTROL OF FUEL CELL SYSTEMS

Dynamics and Control of Membrane Hydration in a PEMFC*	2648
<i>Syed Ahmed, Donald J. Chmielewski</i>	
Load Characteristics and Control of a Hybrid Fuel Cell / Battery Vehicle.....	2654
<i>Syed Ahmed, Donald J. Chmielewski</i>	
Dynamic Behavior and Control of a Tubular Solid-Oxide Fuel Cell System	2660
<i>S. Ahmad Hajimolana, Masoud Soroush</i>	
Through the Membrane & Along the Channel Flooding in PEMFCs	2666
<i>Jason Siegel, Anna G. Stefanopoulou</i>	
Dynamic Modeling and System Identification of a Tubular Solid Oxide Fuel Cell (TSOFC).....	2672
<i>Debangsu Bhattacharyya, Raghunathan Rengaswamy</i>	
Experimental Evaluation of Linear Model Based Control Strategies for PEMFCs	2678
<i>Ravi Methekar, Sachin Patwardhan, Raghunathan Rengaswamy, Ravindra Gudi, Vinay Prasad</i>	

THB01

AUTOMOTIVE ENGINE CONTROL II

An Iterative Algorithm for Model-Based Predictive Control of an Electro-Pneumatic Valve Actuator	2684
<i>Guoming Zhu, Jia Ma, Harold Schock</i>	
Rotational Angle Based Pressure Control of a Common Rail Fuel Injection System for Internal Combustion Engines.....	2690
<i>Zhen Zhang, Zongxuan Sun</i>	
Modeling and Control Design of a Camless Valve Actuation System	2696
<i>Pradeep Kumar Gillella, Zongxuan Sun</i>	
Throttle Actuator Swapping Modularity Design for Idle Speed Control	2702
<i>Shifang Li, Melih Cakmakci, Ilya V. Kolmanovsky, A. Galip Ulsoy</i>	
Low-Complexity Model Predictive Control of Electromagnetic Actuators with a Stability Guarantee	2708
<i>R. M. Hermans, Mircea Lazar, Stefano Di Cairano, Ilya V. Kolmanovsky</i>	
Practical Observers for Unmeasured States in Turbocharged Gasoline Engines.....	2714
<i>Julia Buckland, James S. Freudenberg, Jessy W. Grizzle, Mrdjan Jankovic</i>	

THB02

BRIDGING THE GAP BETWEEN ACADEMIA AND INDUSTRY

Bridging the Gap between Universities and Industry	2720
<i>Terrence Blevins, Gregory McMillan</i>	
Bridging the Gap Between Academia and Industry - Washington University's Process Control Laboratories	2730
<i>Yinjie Tang, Robert Heider</i>	
Rose-Hulman Institute of Technology Unit Operations Laboratory	2735
<i>Atanas Serbezov, Ronald Artigue, Ron Knecht</i>	
Engineering Research Center for Structured Organic Particulate Synthesis (ERC-SOPS)	2741
<i>Rex Reklaitis, Venkat Venkatasubramanian, Arun Giridhar</i>	

Using a Distributed Control System (DCS) for Distillation Column Control in an Undergraduate Unit Operations Laboratory	2744
<i>Ivan Castillo, Thomas F. Edgar</i>	

THB03

POWER SYSTEMS II

Turbine Speed Control for an Ocean Wave Energy Conversion System	2749
<i>Paula B. Garcia-Rosa, Jose Paulo V. S. Cunha, Fernando Lizarralde</i>	
CPS Compliant Fuzzy Neural Network Load Frequency Control	2755
<i>Xiangjie Liu, Jianwu Zhang</i>	
An Onboard Electrical Network Platform - Modeling & Simulation	2761
<i>Gang Yao, Guy Lebret, Mourad Ait-Ahmed, Pedro Neiva Kvieska, Tianhao Tang</i>	
A Feedback Based Load Shaping Strategy for Fuel Utilization Control in SOFC Systems	2767
<i>Tuhin Das, Ryan Weisman</i>	
Load Frequency Control for Multiple-Area Power Systems	2773
<i>Yao Zhang, Lili Dong, Zhiqiang Gao</i>	
Nonlinear Multivariable Supervisory Predictive Control for Combined Cycle Power Plant Using Associate Memory Network	2779
<i>Xiangjie Liu, Lixia Niu, Jizhen Liu</i>	

THB06

INFORMATION FUSION AND NETWORKS

Fast Sensor Scheduling for Spatially Distributed Heterogeneous Sensors	2785
<i>Shogo Arai, Yasushi Iwatani, Koichi Hashimoto</i>	
Detection Using Intermittent Observations for Passive Wireless Sensors	2791
<i>Ashraf Tantawy, Xenofon Koutsoukos, Gautam Biswas</i>	
A Distributed MPC Scheme with Low Communication Requirements	2797
<i>J. M. Maestre, David Muñoz de la Peña, Eduardo F. Camacho</i>	
Robust Stabilization of Networked Control Systems with Nonlinear Uncertainties	2803
<i>Junyan Yu, Long Wang, Mei Yu, Yingmin Jia</i>	
Uncertainty Reduction on Temperature Differential Measurements Using the Calibration by Comparison Method	2809
<i>Jose Alejandro Ospina, Enrico S. Canuto</i>	
Coordinated Guidance of Autonomous UAVs Via Nominal Belief-State Optimization	2811
<i>Scott A. Miller, Zachary Harris, Edwin K. P. Chong</i>	

THB07

APPLICATIONS II

Nonlinear Robust Stochastic Control for Unmanned Aerial Vehicles	2819
<i>Yunjun Xu</i>	
Lower Bounds on the Rate of Learning in Social Networks	2825
<i>Ilan Lobel, Daron Acemoglu, Munther A. Dahleh, Asuman Ozdaglar</i>	
Option Pricing for Inventory Management and Control	2831
<i>Bryant Angelos, McKay Heasley, Jeffrey Humpherys</i>	
Laser Beam Pointing and Stabilization by Intensity Feedback Control	2837
<i>Nestor Osvaldo Perez Arancibia, James Steven Gibson, Tsu-Chin Tsao</i>	
Steady-State and N-Stages Control for Isolated Controlled Intersections	2843
<i>Jack Haddad, Bart De Schutter, David Mahalel, Per-Olof Gutman</i>	
Digital Design of Coefficient Diagram Method	2849
<i>Omur Ocal, Atilla Bir, Bernd Tibken</i>	

THB08

CONTROL APPLICATIONS FOR ROBOTIC SYSTEMS

Pose Control of Robot Manipulators Using Different Orientation Representations: A Comparative Review	2855
<i>Ricardo Campa, Hussein De La Torre</i>	

Coordinated Control of Multiple Mobile Robots in Pursuit-Evasion Games	2861
<i>Feifei Huang, Long Wang, Qining Wang, Ming Wu, Yingmin Jia</i>	
A New Operational Space Trajectory Tracking Controller for Manipulators by Using Only Position Measurements	2867
<i>Javier Moreno-Valenzuela, Ernesto Orozco-Manriquez</i>	
Motion Control of an Aerial Work Platform	2873
<i>Qinghui Yuan, Jae Lew, Damrongrit Piyabongkarn</i>	
Grasping Control of 3-Joint Dual Finger Robot: Lyapunov Stability Approach	2879
<i>Seung Kwan Song, Jin Bae Park, Yoon Ho Choi</i>	
A Nested PID Steering Control for Lane Keeping in Vision Based Autonomous Vehicles	2885
<i>Riccardo Marino, Stefano Scalzi, Giuseppe Orlando, Mariana Netto</i>	

THB09

LARGE SCALE SYSTEMS

Distributed Feedback Control for an Eulerian Model of the National Airspace System	2891
<i>Jerome Le Ny, Hamsa Balakrishnan</i>	
A Scalable Robust Stability Criteria for Systems with Heterogeneous LTI Components	2898
<i>Ulf T. Jonsson, Chung-Yao Kao</i>	
A New Sufficient Condition for Additive D-Stability and Application to Cyclic Reaction-Diffusion Models	2904
<i>Xiaoqing Ge, Murat Arcak</i>	
Distributed Fault-tolerant Control Systems Design Against Actuator Faults and Faulty Interconnection Links: an Adaptive Method	2910
<i>Xiao-Zheng Jin, Guang-Hong Yang</i>	
Freeway Traffic Flow Simulation Using the Link Node Cell Transmission Model	2916
<i>Ajith Muralidharan, Gunes Dervisoglu, Roberto Horowitz</i>	
Supervised Self-Organization of Large Homogeneous Swarms Using Ergodic Projections of Markov Chains	2922
<i>Ishanu Chattopadhyay, Asok Ray</i>	

THB10

NEURAL NETWORKS

Neuro-Fuzzy Network Control for a Mobile Robot	2928
<i>Jun Oh Jang, Hee Tae Chung</i>	
Neural Network Control of a Class of Nonlinear Discrete Time Systems with Asymptotic Stability Guarantees	2934
<i>Balaje Thumati, Sarangapani Jagannathan</i>	
Trajectory Tracking based on Differential Neural Networks for a Class of Nonlinear Systems	2940
<i>J. Humberto Perez-Cruz, Alexander S. Poznyak</i>	
A Novel Adaptive NN Control for a Class of Strict-Feedback Nonlinear Systems	2946
<i>Tieshan Li, Dan Wang, Wei Li</i>	
Adaptive Control with Composite Learning for Tubular Linear Motors with Micro-Metric Tolerances	2952
<i>David Naso, Francesco Cupertino, Biagio Turchiano</i>	
On Quantized Consensus by Means of Gossip Algorithm - Part II: Convergence Time	2958
<i>Javad Lavaei, Richard M. Murray</i>	

THB11

MULTIVEHICLE CONTROL

H2 Analysis and Synthesis of Networked Dynamic Systems	2966
<i>Daniel Zelazo, Mehran Mesbahi</i>	
Further Results on the Stability of Distance-Based Multi-Robot Formations	2972
<i>Dimos V. Dimarogonas, Karl H. Johansson</i>	
Multiple UAV Path Planning Using Anytime Algorithms	2978
<i>Sujit P B, Randy Beard</i>	
Stochastic Analysis and Stabilization of Remote Control Systems	2984
<i>Long Sheng, Ya-Jun Pan</i>	
Neural Network Control of Quadrotor UAV Formations	2990
<i>Travis Dierks, Sarangapani Jagannathan</i>	

Stability of Potential Function Formation Control with Communication and Processing Delay	2997
<i>Luke Wachter, Laura Ray</i>	

THB12

SWITCHED SYSTEMS IV

Stability and Convergence of Perturbed Switched Linear Time-Delay Systems	3005
<i>Qing-Kui Li, Georgi M Dimirovski, Jun Zhao, Xiangjie Liu</i>	
State-Feedback Stabilizability in Switched Homogeneous Systems	3011
<i>Federico Najson</i>	
Variable Structure Based Switching Adaptive Control for a Class of Unknown Switched Linear Systems	3019
<i>Ming-Li Chiang, Li-Chen Fu</i>	
Rank Tests for the Observability of Discrete-Time Jump Linear Systems with Inputs	3025
<i>Ehsan Elhamifar, Mihaly Petreczky, Rene Vidal</i>	
Switched System Based Approach to Analysis and Synthesis of Discrete-Time Linear Systems with Time-Varying State Delay	3033
<i>Xin Du, Guang-Hong Yang</i>	

THB13

PATH FOLLOWING FOR NONLINEAR SYSTEMS: THEORY AND APPLICATIONS

Transverse Linearization for Mechanical Systems with Several Passive Degrees of Freedom with Applications to Orbital Stabilization	3039
<i>Anton Shiriaev, Leonid Freidovich, Sergei V. Gusev</i>	
Path Following Using Transverse Feedback Linearization: Application to a Maglev Positioning System	3045
<i>Christopher Nielsen, Cameron Fulford, Manfredi Maggiore</i>	
On the Solution of the Path Following Problem for the PVTOL Aircraft	3051
<i>Luca Consolini, Manfredi Maggiore, Mario Tosques, Christopher Nielsen</i>	
Throwing Motion Control based on Output Zeroing utilizing 2-Link Underactuated Arm	3057
<i>Shunsuke Katsumata, Shigenori Ichinose, Takuya Shoji, Shigeki Nakaura, Mitsuji Sampei</i>	
Straight Line Path Following for Formations of Underactuated Surface Vessels under Influence of Ocean Currents	3065
<i>Mernout Burger, Alexey Pavlov, Even Borhaug, Kristin Y. Pettersen</i>	
A General Framework for Multiple Vehicle Time-Coordinated Path Following Control	3071
<i>Reza Ghabcheloo, Isaac Kaminer, A. Pedro Aguiar, Antonio M. Pascoal</i>	

THB14

ROBUST CONTROL II

Recursive Robust Regulator for Discrete-Time State-Space Systems	3077
<i>João Paulo Cerrí, Marco Henrique Terra, João Yoshiyuki Ishihara</i>	
Robust Controller Order Reduction	3083
<i>Vahid Raissi Dehkordi, Benoit Boulet</i>	
Tuning Clamping Regulators for Positive SISO Unknown LTI Systems: Industrial Hydraulic System	3089
<i>Bartek Roszak, Edward J. Davison</i>	
The PI-Controller for Infinite Dimensional Linear Systems in Banach State Spaces	3095
<i>Said Boulite, Said Hadd, Hazem Nounou, Mohamed Nounou</i>	
Central Suboptimal H_∞ Control Design for Nonlinear Polynomial Systems	3101
<i>Michael V. Basin, Peng Shi, Dario Calderon-Alvarez</i>	
Robust Adaptive Fuzzy Tracking Control for a Class of MIMO Systems: A Minimal-Learning-Parameters Algorithm	3106
<i>Tieshan Li, Gang Feng, Zaojian Zou, Yan-Jun Liu</i>	

THB15

LPV CONTROL SYSTEMS I

LPV Decoupling for Multivariable Control System Design	3112
<i>Javad Mohammadpour Velni, Karolos M. Grigoriadis, Matthew A. Franchek, Yue-Yun Wang</i>	

Stabilizing Model Predictive Control for LPV Systems Subject to Constraints with Parameter-Dependent Control Law	3118
<i>Shuyou Yu, Christoph Bohm, Hong Chen, Frank Allgower</i>	
Experimental Results on LPV Stabilization of a Riderless Bicycle	3124
<i>Davide Andreo, Vito Cerone, Dacfez Dzung, Diego Regruto</i>	
Implementaion of FIR Control for H-Infinity Output Feedback Stabilization of Linear Systems	3130
<i>Kwan Ho Lee, Igor Boiko, Biao Huang</i>	
Tip-Over Stability Analysis of Mobile Boom Cranes with Double-Pendulum Payloads	3136
<i>William Singhose, Daichi Fujioka, Andreas Rauch, Taft Jones</i>	
On the Transient Control of Linear Time Invariant Systems	3142
<i>Waqar Malik, Swaroop Darbha, Shankar P. Bhattacharyya</i>	

THB16

MODELLING AND CONTROL OF HYPERSONIC VEHICLES. PART II: GUIDANCE AND CONTROL

Analysis of an Adaptive Mixing Control Scheme for an Airbreathing Hypersonic Vehicle Model	3148
<i>Matthew Kuipers, Petros A. Ioannou, Baris Fidan, Maj Dean Mirmirani</i>	
Constraint Enforcement Control Methods for Scramjet-Powered Hypersonic Vehicles with Significant Aero-Elastic-Propulsion Interactions	3154
<i>Don Soloway, Armando A. Rodriguez, Jeffrey Dickeson, Oguzhan Cifdaloç, Jose V. Benavides, Atul Kelkar, Jerald M. Vogel, Srikanth Sridharan</i>	
Nonlinear Control of Non-Minimum Phase Hypersonic Vehicle Models	3160
<i>Lisa Fiorentini, Andrea Serrani, Michael Bolender, David B. Doman</i>	
L1 Adaptive Control of a Hypersonic Vehicle with Flexible Body Dynamics	3166
<i>Yu Lei, Chengyu Cao, Eugene M. Cliff, Naira Hovakimyan, Andrew J. Kurdila, Kevin A. Wise</i>	
Integrated Adaptive Guidance and Control of Constrained Nonlinear Air-Breathing Hypersonic Vehicle Models	3172
<i>Andrea Serrani, Alicia Zinnecker, Lisa Fiorentini, Michael Bolender, David B. Doman</i>	
Adaptive Control of Hypersonic Vehicles in the Presence of Modeling Uncertainties	3178
<i>Travis Gibson, Luis G Crespo, Anuradha Annaswamy</i>	

THB17

FILTERING

On the Residual Based Stochastic Gradient Algorithm for Dual-Rate Sampled-Data Systems Using the Polynomial Transform Technique	3184
<i>Xiaoming Chen, Yuwu Liao, Feng Ding, Dongqing Wang</i>	
Non-Fragile H_{∞} Filter Design with Pole Placement Constraints for Delta Operator Formulated Systems Via LMI Optimi	3188
<i>Xiang-Gui Guo, Guang-Hong Yang</i>	
A Finite Frequency Approach to Reliable H_1 Filtering for Linear Continuous-Time Systems with Sensor Faults	3194
<i>Heng Wang, Guang-Hong Yang, He-Hua Ju, Li-Guo Zhang</i>	
Are Anti-Aliasing Filters Really Necessary for Sampled-Data Control?	3200
<i>Marian Blachuta, Rafal Grygiel</i>	
A Convex Optimization Approach to Filtering in Jump Systems with State Dependent Transition Probabilities	3206
<i>Agostino Capponi, Concetta Pilotto</i>	
A Direct Quadrature Approach for Nonlinear Filtering	3212
<i>Yunjun Xu, Jangho Yoon</i>	

THB18

ADAPTIVE CONTROL APPLICATIONS I

Adaptive Control in the Presence of Quantization and Saturation: Application to Laser Beam Steering by a Liquid Crystal Device	3218
<i>Pawel Konrad Orzechowski, James Steven Gibson, Tsu-Chin Tsao, Dan Herrick, Victor Maxwell Beazel, Milind Mahajan, Bing Wen, Bruce Winker</i>	
An Adaptive Observer Design for Recirculation Based Solid Oxide Fuel Cell Systems Using Cell Voltage Measurement	3224
<i>Tuhin Das</i>	
Improved Convergence of MRAC Design for Printing System	3232
<i>Mohammed Ezzeldin Mahdy, P. P. J. Van Den Bosch, Rene Waarsing</i>	

An Adaptive Control Technology for Safety of a GTM-Like Aircraft Model	3238
<i>Megumi Matsutani, Travis Gibson, Jinho Jang, Luis G Crespo, Anuradha Annaswamy</i>	
Adaptive Disturbance Rejection in the Presence of Uncertain Resonance Mode in Hard Disk Drives	3244
<i>Fan Hong, Chunling Du, Keng Peng Tee, Shuzhi Sam Ge</i>	
L1 Adaptive Control for Autonomous Rotorcraft	3250
<i>Bruno J. N. Guerreiro, Carlos Silvestre, Rita Cunha, Chengyu Cao, Naira Hovakimyan</i>	

THB19

COOPERATIVE CONTROL IV

Leader-Follower Consensus of Multi-Agent Systems	3256
<i>Zhongkui Li, Zhisheng Duan, Lin Huang</i>	
Stability and Robustness of Systems with Synchronization Errors	3262
<i>Marek Przedwojski, Krzysztof Galkowski, Peter H. Bauer, Eric Rogers</i>	
Dynamic Optimal Control of Multiple Depot Vehicle Routing Problem with Metric Temporal Logic	3268
<i>Mariam Faied, Ahmed Mostafa, Anouck Girard</i>	
Cooperative Phototaxis Using Networked Mobile Sensors and Centroidal Voronoi Tessellations	3274
<i>Shelley Rounds, Yangquan Chen</i>	
Coalition Formation in Multi-Agent Systems Based on Bottleneck Dolphin Alliances	3280
<i>Musad Haque, Magnus Egerstedt</i>	
Information Broadcasting Algorithm for Finite-Time Reaching-At-Risk Consensus with Application to Weapon-Target Assignment	3286
<i>Nicolas Lechevin, Camille Alain Rabbath, Youmin Zhang</i>	

THB20

CONTROL OF NETWORKS I

Krasovskii's Method in the Stability of Network Control	3292
<i>Diego Fejjer, Fernando Paganini</i>	
Distributed Network Utility Maximization Using Event-Triggered Augmented Lagrangian Methods	3298
<i>Pu Wan, Michael Lemmon</i>	
Nash Q-Learning Multi-Agent Flow Control for High-Speed Networks	3304
<i>Yuanwei Jing, Xin Li, Georgi M Dimirovski, Yan Zheng, Si-Ying Zhang</i>	
Phase Transition in Complex Networks	3310
<i>Dan Wang, Na Cai, Yuanwei Jing, Si-Ying Zhang</i>	
Sliding Mode Congestion Control for DiffServ Networks	3314
<i>Nannan Zhang, Yuanwei Jing, Yucheng Zhou, Si-Ying Zhang</i>	
Moving Targets Tracking and Observing in a Distributed Mobile Sensor Network	3319
<i>Hung La, Weihua Sheng</i>	

THC01

AUTOMOTIVE TRACTION CONTROL

Accounting for Tire Effect in Vehicle Longitudinal Control	3325
<i>Fouad Giri, Khalid El Majdoub, Hamid Ouadii</i>	
Vehicle Pure Yaw Moment Generation by Using Tire Differential Slip Control	3331
<i>Wei Liang, Hai Yu, Ryan McGee, Ming L. Kuang, Juraj V. Medanic</i>	
Virtual Sensors, Application to Vehicle-Tire Road Normal Forces for Road Safety	3337
<i>Moustapha Doumiati, Alessandro Victorino, Ali Charara, Daniel Lechner</i>	
Second Order Sliding Mode for Traction Control in Ride-By-Wire Sport Motorcycles	3344
<i>Claudio Vecchio, Mara Tanelli, Matteo Corno, Antonella Ferrara, Sergio M. Savaresi</i>	
An LMI Approach to Slip Ratio Control of Vehicle Antilock Braking Systems	3350
<i>Yan-E Mao, Yan Zheng, Yuanwei Jing, Georgi M Dimirovski, Siying Zhang</i>	

Vibration Reduction Using a Two-Step Braking Profile	3355
<i>Omar Al Assad, Carlos Martinez Ferreira, Vincent Croulard, Emmanuel Godoy</i>	

THC02

BUSINESS AND BANDWIDTH: A TUTORIAL ON HOW BUSINESS AND USE MODELS AFFECT INDUSTRIAL CONTROL DESIGN

A Tale of Three Actuators: How Mechanics, Business Models and Position Sensing Affect Different Mechatronic Servo Problems	3357
<i>Daniel Y. Abramovitch</i>	
H-Infinity Filtering of Networked Systems with Time-Varying Sampling Rates	3372
<i>Renato A. Borges, Ricardo C. L. F. Oliveira, Chaouki T. Abdallah, Pedro L. D. Peres</i>	

THC03

MEASUREMENT AND CONTROL IN NETWORKED SYSTEMS

Redundant Data Transmission in Control/Estimation Over Wireless Networks	3378
<i>Alexandre Mesquita, Joao P. Hespanha, Girish N. Nair</i>	
Analysis of Distributed Control Systems with Shared Communication and Computation Resources	3384
<i>Payam Naghshtabrizi, Joao P. Hespanha</i>	
Quasi-Decentralized Control of Process Systems Using Wireless Sensor Networks with Scheduled Sensor Transmissions.....	3390
<i>Nael H. El-Farra, Yulei Sun</i>	
Compressive Cooperative Sensing and Mapping in Mobile Networks	3397
<i>Yasamin Mostofi, Pradeep Sen</i>	
Optimal Kalman Filtering with Random Sensor Delays, Packet Dropouts and Missing Measurements	3405
<i>Maryam Moayedi, Yeng Chai Soh, Yung Kuan Foo</i>	

THC06

FAULT DETECTION AND ACCOMODATION I

Robust Fault Reconstruction Using Multiple Sliding Mode Observers in Cascade: Development and Design	3411
<i>Chee Pin Tan, Christopher Edwards</i>	
Dynamic Kernel Scatter-Difference-Based Discriminant Analysis for Diagnosis of Tennessee Eastman Process	3417
<i>Sumana C. Venkateshwarlu Ch., Ravindra Gudi, Mani Bhushan</i>	
Fast Time-Frequency Domain Reflectometry Based on the AR Coefficient Estimation of a Chirp Signal	3423
<i>Seung Ho Doo, Won-Sang Ra, Tae-Sung Yoon, Jin Bae Park</i>	
Application of Combined Support Vector Machines in Process Fault Diagnosis	3429
<i>Esmael Tafazzoli, Mehrdad Saif</i>	
Improved Monitoring and Discrimination of Batch Processes Using Correspondence Analysis.....	3434
<i>Shailesh Patel, Ravindra Gudi</i>	
Effective Fault Detection & Isolation Using Bond Graph-Based Domain Decomposition.....	3440
<i>Xi Zhang, Karlene Hoo</i>	

THC07

APPLICATIONS OF NONLINEAR CONTROL

Global Swing Instability in the New England Power Grid Model	3446
<i>Yoshihiko Susuki, Igor Mezić, Takashi Hikiyama</i>	
Lyapunov Stability of an Open-Loop Induction Machine	3452
<i>Ahmed Oteafy, John Chiasson</i>	
Dynamic Feedback Linearization Applied to Asymptotic Tracking: Generalization about the Turbocharged Diesel Engine Outputs Choice	3458
<i>Marcelin Dabo, Nicolas Langlois, Houcine Chafouk</i>	
Experimental Studies on Improving Safety in Haptic and Teleoperation Systems	3464
<i>Julian Ware, Yongqiang Ye, Ya-Jun Pan, Yash P. Gupta</i>	
Nonlinear Control of Associations Including Synchronous Motors and AC/DC/AC Converters a Formal Analysis of Speed Regulation and Power Factor Correction	3470
<i>Abdelmounime El Magri, Fouad Giri, Abdelmajid Abouloifa, Ibtissam Lachkar, F. Z. Chaoui</i>	

A Nonlinear Feedback Tracking Control for Pneumatic Cylinders and Experiment Study	3476
<i>Yong Yin, Jihong Wang</i>	

THC08
MECHATRONICS

Design and Relay-Based Control of a Novel Linear Magnetostrictive Motor	3482
<i>Won-Jong Kim, Ali Sadighi</i>	
A New Experimental Test Bench for a High Performance Double Electropneumatic Actuator System	3488
<i>Alexis Girin, Franck Plestan</i>	
Impulsive Control of a Mechanical Oscillator with Friction	3494
<i>Yury Orlov, Raul Santiesteban Cos, Luis T. Aguilar</i>	
Backstepping Controller Synthesis for Piecewise Polynomial Systems: A Sum of Squares Approach	3500
<i>Behzad Samadi, Luis Rodrigues</i>	
Adaptive Control of a Robotic System Undergoing a Non-Contact to Contact Transition with a Viscoelastic Environment	3506
<i>Shubhendu Bhasin, Keith Dupree, Zachary Wilcox, Warren E. Dixon</i>	

THC09
DECENTRALIZED CONTROL I

The Design of Multi-Lead-Compensators for Stabilization and Pole Placement in Double-Integrator Networks Under Saturation	3512
<i>Yan Wan, Sandip Roy, Ali Saberi, Anton A. Stoorvogel</i>	
Stable Control of Distributed Hysteretic Systems Using Cellular Broadcast Stochastic Feedback	3519
<i>Levi Benjamin Wood, H. Harry Asada</i>	
Decentralized Suboptimal Control via Limited Capacity Channels	3525
<i>Alireza Farhadi, Nasiruddin Ahmed</i>	
Reconfigurable Decentralized Receding Horizon Control for Cooperative Multiple Vehicles Subject to Communication Failure	3531
<i>Hojjat A. Izadi, Brandon, W. Gordon, Youmin Zhang</i>	
Decentralised Static Output Feedback Stabilisation of Networks with H2 Performance	3537
<i>Prathyush P Menon, Christopher Edwards</i>	
WLS-based Partially Decentralized Adaptive Control for Coupled ARMAX Multi-agent Dynamical System	3543
<i>Hongbin Ma, Shuzhi Sam Ge, Kai-Yew Lum</i>	

THC10
FUZZY SYSTEMS I

Assessment of Linguistic Dynamic Cause-And-Effect Rules with Delays	3549
<i>R. Russell Rhinehart, Ming Su</i>	
Genetic Based Fuzzy Logic Controller for a Wall-Following Mobile Robot	3555
<i>Sameh F. Desouky, Howard M. Schwartz</i>	
A New Neural Network-Based Approach for Self-Tuning Control of Nonlinear Multi-Input Multi-Output Dynamic Systems	3561
<i>Jose Canelon, Leang-San Shieh, Yongpeng Zhang, Cajetan Maduabuchi Akujuobi</i>	
Identification of a Class of Nonlinear Systems by a Continuous-Time Recurrent Neurofuzzy Network	3567
<i>Marcos A. Gonzalez-Olvera, Yu Tang</i>	
On the Smoothness in Local Model Networks	3573
<i>Benjamin Hartmann, Oliver Nelles</i>	

THC11
MARINE VEHICLES

A Hierarchical Path Planning and Obstacle Avoidance System for an Autonomous Underwater Vehicle	3579
<i>Farshad Khorrami, Prashanth Krishnamurthy</i>	
Robust Feedback Tracking of Autonomous Underwater Vehicles with Disturbance Rejection	3585
<i>Amit Sanyal, Monique Chyba</i>	

Signal Threshold Estimation in a Sensor Field for Undersea Target Tracking	3591
<i>Kushal Mukherjee, Asok Ray, Thomas Wettergren, Ishanu Chattopadhyay, Shashi Poha</i>	
State-Dependent Trajectory Planning and Tracking Control of Unmanned Surface Vessels	3597
<i>Reza A. Soltan, Hashem Ashrafioun, Kenneth R. Muske</i>	
Viability-Based Computation of Spatially Constrained Minimum Time Trajectories for an Autonomous Underwater Vehicle: Implementation and Experiments	3603
<i>Andrew Tinka, S. Diemer, Luā-s Madureira, Eduardo Marques, Joao Sousa, Ricardo Martins, Jose Pinto, Jorge Estrela Silva, Patrick Saint-Pierre, Alexandre M. Bayen</i>	
Path Following for Marine Surface Vessels with Rudder and Roll Constraints: An MPC Approach	3611
<i>Zhen Li, Jing Sun, So-Ryeok Oh</i>	

THC12
HYBRID SYSTEMS I

Hybrid LQ-Optimization Using Dynamic Programming	3617
<i>Vadim Azhmyakov, Rosalba Galvan Guerra, Magnus Egerstedt</i>	
Formal and Practical Completion of Lagrangian Hybrid Systems	3624
<i>Yizhar Or, Aaron Ames</i>	
Analysis and Control of Hybrid Systems with Parameter Uncertainty Based on Interval Methods	3632
<i>Koichi Kobayashi, Kunihiko Hiraishi</i>	
A Separation Principle for a Class of Hybrid Automata on a Partial Order	3638
<i>Domitilla Del Vecchio, Michael Malisoff, Rajeev Verma</i>	
Modeling Multi-Agent Systems with Hybrid Interacting Dynamics	3644
<i>Jorge Piovesan, Chaouki T. Abdallah, Herbert Tanner</i>	
Unifying Behavior-Based Control Design and Hybrid Stability Theory	3650
<i>Vladimir Djapic, Jay A. Farrell, W. Dong</i>	

THC13
HVAC AND MECHATRONIC SYSTEMS

Stability Analysis of Heat Exchanger Dynamics	3656
<i>Tiejun Zhang, John T. Wen, Juan Catano, Rongliang Zhou</i>	
A Full Dynamic Model of a HVAC Vapor Compression Cycle Interacting with a Dynamic Environment	3662
<i>Bin Li, Andrew G. Alleyne</i>	
A Model-Based Predictive Supervisory Controller for Multi-Evaporator HVAC Systems	3669
<i>Matthew Elliott, Bryan Rasmussen</i>	
Printer Media Path Closed Loop Control	3675
<i>Martin Krucinski</i>	
Two-Degree-Of-Freedom Control of a Dual-Stage Actuator Positioning System for Short-Span Tracking	3681
<i>Jinchuan Zheng, Weizhou Su, Minyue Fu</i>	
Real-Time Measurement of Eccentric Motion with Capacitive Sensor for Hydraulic Pumps	3687
<i>Hung-Ming Cheng, George T.-C. Chiu, Matthew A. Francheck</i>	

THC14
ROBUST CONTROL III

Robust H_{∞} Stabilization of a Nonlinear Uncertain System Via a Stable Nonlinear Output Feedback Controller Controller	3693
<i>Hendra Gunawan Harno, Ian R. Petersen</i>	
Capabilities of Extended State Observer for Estimating Uncertainties	3700
<i>Xiaoxia Yang, Yi Huang</i>	
Robust D Stabilization of Singular Systems with Polytopic Uncertainties	3706
<i>Jianjun Bai, Hongye Su</i>	
Robust Stability of Linear Interval Parameter Matrix Family Problem Revisited with Accurate Representation and Solution	3710
<i>Rama K. Yedavalli</i>	
Robust Delay-Dependent Stability of Polytopic Systems with Interval Time-Varying Delay	3718
<i>Chao Shen, Georgi M Dimirovski, Yuanwei Jing, Yan Zheng</i>	

A Frequency Response Parametrization of All Stabilizing Controllers for Continuous Time Systems	3724
<i>L. H. Keel, Bahram Shafai, Shankar P. Bhattacharyya</i>	

THC15

LPV CONTROL SYSTEMS II

LPV Control of an Active Vibration Isolation System	3730
<i>Wouter Aangenent, Christiaan Henricus Antonius Crieis, Rene Van De Molengraft, Marcel Heertjes, Maarten Steinbuch</i>	
Robust Stability Via Polyhedral Lyapunov Functions	3736
<i>Francesco Amato, Roberto Ambrosino, Marco Ariola</i>	
A Parameter-Dependent Lyapunov Approach for the Control of Nonstationary and Hybrid LPV Systems	3742
<i>Mazen Farhood, Eric Feron</i>	
MTL Robust Testing and Verification for LPV Systems	3748
<i>Georgios Fainekos, George J. Pappas</i>	
Characterizing Uncertain Time-Varying Parameters with Periodic Reset	3754
<i>Hisaya Fujioka, Ulf T. Jonsson</i>	
On Similarity Classes of Discrete-Time Floquet Transformations	3757
<i>Yoshikazu Hayakawa, Tomohiko Jimbo</i>	

THC16

CONTROL EDUCATION

Inverted Pendulum with Moving Reference for Benchmarking Control Systems Performance	3764
<i>Jehandad Khan, Khalid Munawar, Amer Azim Raja, Muhammad Salman</i>	
Formulas for Asymmetric Lead and Lag Compensators	3769
<i>William Messner</i>	
A Reverse Osmosis Laboratory Plant for Experimenting with Fault-Tolerant Control	3775
<i>Adrian Gambier, Tobias Miksch, E. Badreddin</i>	
Portfolio Optimization as a Learning Platform for Control Education and Research	3781
<i>Blake Edward Durtschi, Mark Skinner, Sean Warnick</i>	
Signal Processing Experiments with the LEGO MINDSTORMS NXT Kit for Use in Signals and Systems Courses	3787
<i>Bonnie Heck Ferri, Safayet Ahmed, Jennifer Michaels, Eric Dean, Chris Garyet, Sam Shearman</i>	
Low Cost Mobile Robotics Experiment with Camera and Sonar Sensors	3793
<i>Huan Dinh, Tamer Inanc</i>	

THC17

KALMAN FILTERING

Scheduling Kalman Filters in Continuous Time	3799
<i>Jerome Le Ny, Eric Feron, Munther A. Dahleh</i>	
On the Performance of Kalman Filtering with Intermittent Observations: A Geometric Approach with Fractals	3806
<i>Andrea Censi</i>	
Optimal Nonlinear Estimation for Aircraft Flight Control in Wind Shear	3813
<i>Yuanwei Jing, Jiahe Xu, Georgi M Dimirovski, Yucheng Zhou</i>	
A Discrete-Time Robust Extended Kalman Filter	3819
<i>Abhijit G. Kallapur, Ian R. Petersen, Anavatti G. Sreenatha</i>	
A Unified Extension of The Robust Two-Stage Kalman Filter and Its Application to Functional Filtering	3824
<i>Chien-Shu Hsieh</i>	
Hierarchical Stochastic Gradient Parameter Estimation Algorithms for Multivariable Systems with Colored Noises	3830
<i>Feng Ding, Yanjun Liu</i>	

THC18

ADAPTIVE CONTROL APPLICATIONS II

Stability Analysis of Degenerate Gradient Flows Via the WKB Approximation	3836
<i>Shahar Ben-Menahem, Abraham K. Ishihara</i>	
Self-Triggered Feedback Systems with State-Independent Disturbances	3842
<i>Xiaofeng Wang, Michael Lemmon</i>	

Comparison of Control Algorithms for a MEMS-Based Adaptive Optics Scanning Laser Ophthalmoscope	3848
<i>Kaccie Yang Li, Sandipan Mishra, Pavan Tiruveedhula, Austin Roorda</i>	
RRO Compensation of HDD Based on RPTC Method with Re-Learning Scheme for Discrete Track Recording Media	3854
<i>Hiroaki Nishina, Hiroshi Fujimoto</i>	
Adaptive Tracking Control of Nonholonomic Mobile Robots Considering Actuator Dynamics: Dynamic Surface Design Approach	3860
<i>Bong Seok Park, Sung Jin Yoo, Jin Bae Park, Yoon Ho Choi</i>	
Adaptive SDRE Based Nonlinear Sensorless Speed Control for PMSM Drives	3866
<i>Peda Medagam, Tansel Yucelen, Farzad Pourboghra</i>	

THC19

AUTONOMOUS SYSTEMS

A New Reactive Target-tracking Control with Obstacle Avoidance in a Dynamic Environment	3872
<i>Iangmin Chunyu, Zhihua Qu, Eytan Pollak, Mark Falash</i>	
Decentralized Overlapping Tracking Control of a Formation of Autonomous Unmanned Vehicles	3878
<i>Srdjan S. Stankovic, Dusan M. Stipanovic, Milos S. Stankovic</i>	
Average Consensus for Networks of Continuous-Time Agents with Delayed Information and Jointly Connected Topologies	3884
<i>Peng Lin, Yingmin Jia, Junping Du, Fashan Yu</i>	
A Reactive Inverse PN Algorithm for Collision Avoidance among Multiple Unmanned Aerial Vehicles	3890
<i>Joel George, Debasish Ghose</i>	
Robustness Analysis on Constrained Model Predictive Control for Nonholonomic Vehicle Regulation	3896
<i>Yongjie Zhu, Umit Ozguner</i>	
Consensus in Multi-Agent Systems Via Sampled Control: Fixed Topology Case	3902
<i>Guangming Xie, Huiyang Liu, Long Wang, Yingmin Jia</i>	

THC20

DYNAMICS AND CONTROL OF CIVIL INFRASTRUCTURE SYSTEMS: PART I

A Velocity-Based Seismic Control for Base-Isolated Building Structures	3908
<i>Francesc Pozo, Leonardo Acho, Jose Rodellar, Josep M. Rossell</i>	
Near Real-Time System Identification in a Wireless Sensor Network for Adaptive Feedback Control	3914
<i>Raymond Swartz, Jerome Lynch, Chin-Hsiung Loh</i>	
Control Strategies for a Distributed Mass Damper System	3920
<i>Tat S Fu, Erik A Johnson</i>	
Structural Damage Localization with Tolerance to Large Time Synchronization Errors in WSNs	3926
<i>Guirong Yan, Shirley J. Dyke, Wei Song</i>	
Control Objectives for Seismic Simulators	3932
<i>Henri P. Gavin, Jesse B. Hoagg</i>	

FRA01

ENERGY MANAGEMENT FOR HYBRID ELECTRIC VEHICLES

A Rule-Based Energy Management Strategy for Plug-In Hybrid Electric Vehicle (PHEV)	3938
<i>Harpreeetsingh Banvait, Sohail Anwar, Yaobin Chen</i>	
Integrated Powertrain Control to Meet Future CO₂ and Euro-6 Emissions Targets for a Diesel Hybrid with SCR-DeNO_x System	3944
<i>Frank Willems, Darren Foster</i>	
Effects of Different PHEV Control Strategies on Vehicle Performance	3950
<i>Pinak Tulpule, Vincenzo Marano, Giorgio Rizzoni</i>	
Dynamic Programming for Hybrid Pneumatic Vehicles	3956
<i>Christian Dönitz, Iulian Vasile, Christopher Harald Onder, Lino Guzzella</i>	
ECMS As a Realization of Pontryagin's Minimum Principle for HEV Control	3964
<i>Lorenzo Serrao, Simona Onori, Giorgio Rizzoni</i>	

Predictive Energy Management of a Power-Split Hybrid Electric Vehicle	3970
<i>Hoseinali Borhan, Ardalan Vahidi, Anthony M. Phillips, Ming L. Kuang, Ilya V. Kolmanovsky</i>	

FRA02

NONLINEAR SYSTEMS II

Why Are Some Hysteresis Loops Shaped Like a Butterfly?	3977
<i>Bojana Drincic, Dennis S. Bernstein</i>	
A Method to Construct Viability Kernels for Nonlinear Control Systems	3983
<i>John Turriff, Mireille E. Broucke</i>	
A Geometrical Characterization of a Class of 0-Flat Affine Dynamical Systems	3989
<i>Driss Boutat, Jean Pierre Barbot, Frederic Kratz, Soraya Bououden</i>	
Global Output Feedback Stabilization of a Class of Upper-Triangular Nonlinear Systems	3995
<i>Chunjiang Qian</i>	
An Homotopy Method for Exact Tracking of Nonlinear Nonminimum Phase Systems: The Example of the Spherical Inverted Pendulum	4001
<i>Luca Consolini, Mario Tosques</i>	
Attraction Domain Estimates Combining Lyapunov Functions	4007
<i>Donatello Materassi, Murti V. Salapaka</i>	

FRA03

STABILIZATION OF NETWORKED CONTROL SYSTEMS

Stabilization of Markovian Jump Linear Systems with Limited Information - a Convex Approach	4013
<i>Chun Zhang, Chen Kan, Geir E. Dullerud</i>	
Quantized Stabilization of Markov Jump Linear Systems Via State Feedback	4020
<i>Nan Xiao, Lihua Xie, Minyue Fu</i>	
Optimal Tracking Over an Additive White Gaussian Noise Channel	4026
<i>Yiqian Li, Ertem Tuncel, Jie Chen</i>	
Stability of Impulsive Systems Driven by Renewal Processes	4032
<i>Duarte Antunes, Joao P. Hespanha, Carlos Silvestre</i>	
Mixed H_2/H_∞ Control of Networked Control Systems with Random Delays Modeled by Markov Chains	4038
<i>Yang Shi, Bo Yu, Ji Huang</i>	
Robust Quadratic Control of Discrete-Time Singular Markov Jump Systems with Bounded Transition Probabilities	4044
<i>Shuping Ma, El-Kebir Boukas</i>	

FRA04

TIME-VARYING SYSTEMS

Uniform Semistability for Time-Varying Dynamical Systems and Network Consensus with Time-Dependent Communication Links	4050
<i>Qing Hui, Wassim M. Haddad</i>	
Discrete Time-Varying Attitude Complementary Filter	4056
<i>José Fernandes Vasconcelos, Carlos Silvestre, Paulo Jorge Oliveira, Pedro T. M. Batista, Bruno Carneira</i>	
l_∞ to l_∞ Performance of Slowly Varying Spatiotemporal Systems	4062
<i>Azeem Sarwar, Petros G. Voulgaris, Srinivasa Salapaka</i>	
Commutant Lifting for Linear Time-Varying Systems	4067
<i>Seddik Djouadi</i>	
Reliable H_∞ Filter Design for a Class of Continuous-Time Nonlinear Systems with Time-Varying Delay	4073
<i>Xiang-Gui Guo, Guang-Hong Yang</i>	

Delay-Dependent Absolute Stability Criteria for Uncertain Lur'e Singular Systems with Time-Varying Delay	4079
<i>Huijiao Wang, Anke Xue</i>	

FRA05

DISTRIBUTED PARAMETER SYSTEMS III

Sliding Mode Boundary Control of Unstable Parabolic PDE Systems with Parameter Variations and Matched Disturbances	4085
<i>Meng-Bi Cheng, Verica Radisavljevic, Wu-Chung Su</i>	
Sensitivity Analysis for Control Parameter Determination for a Nonlinear Cable-Mass System	4091
<i>Katie Evans</i>	
Compensating a String PDE in the Actuation or Sensing Path of an Unstable ODE	4097
<i>Miroslav Krstic</i>	
Stability of a Nonlinear Axially Moving String with the Kelvin-Voigt Damping	4103
<i>Shahram M. Shahruz, Ahmed H. El-Shaer</i>	
Structure Preserving Model Order Reduction of Heterogeneous 1-D Distributed Systems	4109
<i>Justin Rice, Michel Verhaegen</i>	
Active Vibration Control of Aerospace Structures Using a Modified Positive Position Feedback Method	4115
<i>S. Nima Mahmoodi, Mohammad Rastgaar Aagaah, Mehdi Ahmadian</i>	

FRA06

OPTIMAL CONTROL APPLICATIONS

Control of Underactuated Undulatory Locomotor Exploiting Anti-Resonance: A Case Study	4121
<i>Ronald Forch, Tetsuya Iwasaki</i>	
Bifurcations and Symmetries of Optimal Solutions for Distributed Robotic Systems	4127
<i>Baoyang Deng, Mihir Sen, Bill Goodwine</i>	
Recursive Log-Barrier Method for On-Line Time-Optimal Robot Path Tracking	4134
<i>Diederik Verscheure, Moritz Diehl, Joris De Schutter, Jan Swevers</i>	
Optimal Input Shaping Filters for Non-Zero Initial States	4141
<i>Abhishek Dhanda, Joshua Vaughan, William Singhose</i>	
A Control Performance Benchmark Subject to Output Variance/Covariance Upper Bound and Pole Placement Constraint	4147
<i>Chun-Yu Liu, Biao Huang, Qinglin Wang</i>	
Discrete-Time Optimal Reset Control Design and Application in HDD Servo Systems	4153
<i>Hui Li, Chunling Du, Youyi Wang, Yuqian Guo</i>	

FRA07

AEROSPACE

Experimental Framework for a Ducted-Fan Miniature Aerial Vehicle	4159
<i>Luca Gentili, Lorenzo Marconi, Roberto Naldi, Andrea Sala</i>	
Validation of a Small Signal Probing Concept for Prognosis on a Nonlinear Model for Longitudinal Motion of a Boeing-747	4165
<i>Jianzhuang Huang, Neng Eva Wu</i>	
Relative GPS Carrier-Phase Positioning Using Particle Filters with Position Samples	4171
<i>Soon Sik Hwang, Jason L. Speyer</i>	
A Hierarchical Architecture for Cooperative Fault Accommodation of Formation Flying Satellites in Deep Space	4178
<i>Seyyedmohsen Azizi, Khashayar Khorasani</i>	
Partial Integrated Guidance and Control of Surface-To-Air Interceptors for High Speed Targets	4184
<i>Radhakant Padhi, Charu Chawla, Priya G Das Priya G Das</i>	
Dynamics of Flapping Micro-Aerial Vehicles	4190
<i>Tse-Ming Yang, Fu-Yuen Hsiao</i>	

FRA08

CONTROL OF PIEZO AND MICRO ACTUATORS

Disturbance Observer-Based Hysteresis Compensation for Piezoelectric Actuators	4196
<i>Steven Chang, Jingang Yi, Yantao Shen</i>	

Design and Experimental Validation of a Nonlinear Tracking Control Law for an Electrostatic Micromirror	4202
<i>Carlos Gustavo Agudelo, Muthukumaran Packirisamy, Guchuan Zhu, Lahcen Saydy</i>	
Control Design for Force Balance Sensors	4208
<i>Zi Yie, Nitin Kataria, Chris Burgner, Karl J. Astrom, Forrest Brewer, Kimberly Turner</i>	
Output-Feedback Adaptive Control of Electrostatic Microactuators	4215
<i>Keng Peng Tee, Shuzhi Sam Ge, Eng Hock Tay</i>	
Observer Based Control of Piezoelectric Actuators with Classical Duhem Modeled Hysteresis	4221
<i>Wenfang Xie, Jun Fu, Han Yao, Chun-Yi Su</i>	
An Optimal On-Off Controller with Switching Costs Using Non-Linear Binary Programming	4227
<i>Kenn Oldham, Biju Edamana</i>	

FRA09

DECENTRALIZED CONTROL II

Low Order Decentralized Stabilizing Controller Design for a Mobile Inverted Pendulum Robot	4233
<i>Christopher Magers, A. N. Gundes</i>	
Overlapping Control Systems with Delayed Communication Channels: Stability Analysis and Controller Design	4235
<i>Ahmadreza Momeni, Amir G. Aghdam</i>	
On Communication in Decentralized Pole-Placement Formation Control and Parallel Estimation	4242
<i>Lingji Chen, Jayesh Amin, Raman K. Mehra</i>	
Stochastic Nestedness and the Belief Sharing Information Pattern in Decentralized Control	4248
<i>Serdar Yuksel</i>	
Local Mode Dependent Output Feedback Control of Uncertain Markovian Jump Large-Scale Systems	4254
<i>Junlin Xiong, Valery Ugrinovskii, Ian R. Petersen</i>	
Supervisory Control of Discrete Event Systems Modeled by Mealy Automata with Nondeterministic Output Functions	4260
<i>Toshimitsu Ushio, Shigemasa Takai</i>	

FRA10

FUZZY SYSTEMS II

Combined Adaptive Fuzzy Control for Uncertain MIMO Nonlinear Systems	4266
<i>Ya-Qin Zheng, Yan-Jun Liu, Shaocheng Tong, Tieshan Li</i>	
A Novel Rule Antecedent Structure and Its Identification For Fuzzy Models	4272
<i>R. Russell Rhinehart, Ming Su</i>	
Synthesis of Switching H_2 and H_∞; Output-Feedback Controllers: A Fuzzy Supervisor Approach	4278
<i>Mehdi Ghasem Moghadam, Fatemeh Jamshidi, Mohammad T. H. Beheshti, Mahmoud Najafi</i>	
Improved Controller Design for Switching Fuzzy Model-Based Control	4284
<i>Hiroshi Ohtake, Kazuo Tanaka, Hua O. Wang</i>	
Fuzzy Adaptive Observer and Filter Backstepping Control for Nonlinear Systems	4290
<i>Changying Li, Shaocheng Tong, Yongming Li, Tieshan Li</i>	
Delay-dependent Exponential Stability Analysis of Fuzzy Delayed Hopfield Neural Networks: a Fuzzy Lyapunov-krasovskii Functional Approach	4296
<i>Li Sheng, Huizhong Yang</i>	

FRA11

FAULT DETECTION AND ACCOMODATION II

Fault Detection and Isolation of a Polyethylene Reactor Using Asynchronous Measurements	4302
<i>Charles McFall, David Muñoz de la Peña, Benjamin James Ohran, Panagiotis D. Christofides, James F. Davis</i>	
Oil Debris Signal Analysis Based on Empirical Mode Decomposition for Machinery Condition Monitoring	4310
<i>Iman Soltani Bozchalooi, Ming Liang</i>	
LMI-based H_2/H_∞ Observer Design in Low Frequency Domain with Application in Fault Detection Detection	4316
<i>Xiao-Jian Li, Guang-Hong Yang</i>	
Fault Diagnosis for a Class of Chemical Batch Processes	4322
<i>Fabrizio Caccavale, Francesco Pierri</i>	
Fault Detection Filter Design for Discrete-Time Delay Systems in Finite Frequency Domain	4328
<i>Xiao-Jian Li, Guang-Hong Yang</i>	

Estimation of Faults in DC Electrical Power System	4334
<i>Dimitry Gorinevsky, Stephen P. Boyd, Scott Poll</i>	

FRA12
HYBRID SYSTEMS II

Multigoal Output Regulation Via Supervisory Control: Application to Stabilization of a Unicycle	4340
<i>Denis Efimov, Antonio Loria, Elena V. Panteley</i>	
Improved Bumpless Transfer with Slow-Fast Controller Decomposition	4346
<i>Shin-Young Cheong, Michael G. Safonov</i>	
Characterization of Backward Reachable Set and Positive Invariant Set in Polytopes	4351
<i>Min Wu, Gangfeng Yan, Zhiyun Lin, Meiqin Liu</i>	
Impact Dynamics Based Control of Compass Gait Biped	4357
<i>Atul Krishna Kamath, Navdeep Singh</i>	
Real-Valued Average Consensus Over Noisy Quantized Channels	4361
<i>Andrea Censi, Richard M. Murray</i>	
Optimal Decentralized Dynamic Quantizers for Discrete-Valued Input Control: A Closed Form Solution and Experimental Evaluation	4367
<i>Yuki Minami, Shun-Ichi Azuma, Toshiharu Sugie</i>	

FRA13
IDENTIFICATION

Online Identification of the Rotor Time Constant of an Induction Machine	4373
<i>Ahmed Otaefy, John Chiasson, Marc Bodson</i>	
Least-squares Based Iterative Parameter Estimation for Two-input Multirate Sampled-data Systems	4379
<i>Jing Lu, Caixia Zhang, Xinggao Liu, Feng Ding</i>	
System Identification of an Interacting Series Process for Real-Time Model Predictive Control	4384
<i>Tri Chandra Setyo Wibowo, Nordin Saad, Mohd Noh Karsiti</i>	
Continuous-Time Errors-In-Variables System Identification through Covariance Matching without Input Signal Modeling	4390
<i>Magnus Mossberg, Torsten Soderstrom</i>	
System Identification Using a Retrospective Correction Filter for Adaptive Feedback Model Updating	4392
<i>Mario Santillo, Anthony D'Amato, Dennis S. Bernstein</i>	
Recursive Estimation on Spatially Rearranged Data for Dynamic Order Determination and Nonlinear Component Detection	4398
<i>R. Russell Rhinehart, Ming Su</i>	

FRA14
STOCHASTIC SYSTEMS I

Stochastic Nash Games for Multimodeling Systems	4404
<i>Hiroaki Mukaidani, Vasile Dragan</i>	
Stochastic H_∞ Control Problem with State-Dependent Noise for Multimodeling Systems	4410
<i>Hiroaki Mukaidani, Vasile Dragan</i>	
Control Variation As a Source of Uncertainty: Single Input Case	4416
<i>Andre P. Calmon, Joao B. R. Do Val, Thomas Vallee</i>	
Guaranteed Cost for Stochastic Systems with Unknown Transitions Jump Rates	4422
<i>El-Kebir Boukas</i>	
Optimal Filtering Over Linear Observations with Unknown Parameters	4428
<i>Michael V. Basin, Dario Calderon-Alvarez</i>	

An Algorithm for the Long Run Average Cost Problem for Linear Systems with Non-Observed Markov Jump Parameters	4434
<i>Carlos Alexandre Silva, Eduardo F. Costa</i>	

FRA17

TOPICS IN CONTROL I

A Gap Metric Based Nonlinearity Measure for Chemical Processes	4440
<i>Jingjing Du, Chunyue Song, Ping Li</i>	
Control of Uncertain Nonlinear Systems Against Actuator Faults Using Adaptive Fuzzy Approximation	4446
<i>Ping Li, Guang-Hong Yang</i>	
Robust Switching-Type H_∞ Filtering for Time-Varying Uncertain Time-Delay Systems	4452
<i>Dan Ye, Guang-Hong Yang</i>	
Consensus in Leaderless Networks of High-Order-Integrator Agents	4458
<i>Fangcui Jiang, Long Wang, Yingmin Jia</i>	
Consensus of Multiple Second-Order Agents without Velocity Measurements	4464
<i>Yanping Gao, Long Wang, Yingmin Jia</i>	
Dynamic Output Feedback Control for Consensus of Multi-Agent Systems: An H-infinity Approach	4470
<i>Yang Liu, Yingmin Jia, Junping Du, Shiyong Yuan</i>	

FRA18

ADAPTIVE CONTROL OF NONLINEAR SYSTEMS

Two-Time-Scale Averaging of Systems Involving Operators and Its Application to Adaptive Control of Hysteretic Systems	4476
<i>Xiaobo Tan, Hassan K. Khalil</i>	
Adaptive Dynamic Surface Control for a Class of Strict-Feedback Nonlinear Systems with Unknown Backlash-Like Hysteresis	4482
<i>Beibei Ren, Phyo Phyo San San, Shuzhi Sam Ge, Tong Heng Lee</i>	
E. Coli Bacterial Foraging Algorithm Applied to Pressure Reducing Valves Control	4488
<i>Eduardo Ramirez, Nicanor Quijano</i>	
Neuroadaptive Output Feedback Control for Nonlinear Nonnegative Dynamical Systems with Actuator Amplitude and Integral Constraints	4494
<i>Kostyantyn Volyanskyy, Wassim M. Haddad, James M. Bailey</i>	
Delay-Adaptive Full-State Predictor Feedback for Systems with Unknown Long Actuator Delay	4500
<i>Miroslav Krstic, Delphine Bresch-Pietri</i>	
Performance Robustness of MRAC under Reduction in Actuator Effectiveness	4506
<i>Qian Sang, Gang Tao</i>	

FRA19

COOPERATION AND CONSENSUS

A Game Theory Approach to Multi-Agent Team Cooperation	4512
<i>Elham Semsar Kazerooni, Khashayar Khorasani</i>	
An LMI Approach to Optimal Consensus Seeking in Multi-Agent Systems	4519
<i>Elham Semsar Kazerooni, Khashayar Khorasani</i>	
Consensus in Multi-Agent Systems Via Sampled Control: Switching Topology Case	4525
<i>Guangming Xie, Huiyang Liu, Long Wang, Yingmin Jia</i>	
On Consensus Over Stochastically Switching Directed Topologies	4531
<i>Sundaram Vanka, Vijay Gupta, Martin Haenggi</i>	
A Convergence Result for Multiagent Systems Subject to Noise	4537
<i>Sonia Martinez</i>	
Distributed Sampling of Random Fields with Unknown Covariance	4543
<i>Rishi Graham, Jorge Cortes</i>	

FRA20

DYNAMIC AND CONTROL OF CIVIL INFRASTRUCTURE SYSTEMS: PART II

Time-Delayed Decentralized H_∞ Controller Design for Civil Structures: A Homotopy Method through Linear Matrix Inequalities	4549
<i>Yang Wang, Kincho H. Law, Sanjay Lal</i>	

Probabilistically-Robust Performance Optimization for Controlled Linear Stochastic Systems	4557
<i>Alexandros Taflanidis, Jeff Scruggs</i>	
Upper Bound Mixed H_2/H_∞ Control and Integrated Design for Collocated Structural Systems	4563
<i>Mona Meisami-Azad, Javad Mohammadpour, Karolos M. Grigoriadis</i>	
Analysis and Synthesis of Self-Powered Linear Structural Control with Imperfect Energy Storage	4569
<i>Jeff Scruggs</i>	
Design of a VSDD Brace Control System for Parameter Estimation of Shear Structures	4575
<i>Dongyu Zhang, Erik A Johnson</i>	
Propulsion Control of a Large Civil Aircraft Using On-Line Control Allocation	4581
<i>Halim Alwi, Christopher Edwards</i>	

FRB01

AUTOMOTIVE CONTROL AND HYBRID VEHICLES

A Novel Nonlinear Model Reduction Method Applied to Automotive Controller Software	4587
<i>Oskar Nilsson, Anders Rantzer</i>	
Model-Based Engine Fault Detection and Isolation	4593
<i>Arkadiusz S. Dutka, Hossein Javaherian, Michael John Grimble</i>	
Power Management of Plug-In Hybrid Electric Vehicles Enhanced with Neural Network Based Freeway Trip Modeling	4601
<i>Qiuming Gong, Yaoyu Li, Zhong-Ren Peng</i>	
Multiple Traffic Information Based Trip Model and Optimal Power Management for Plug-In Hybrid Electric Vehicles	4607
<i>Yang Bin, Yaoyu Li, Qiuming Gong, Zhong-Ren Peng</i>	
Optimally Controlling Hybrid Electric Vehicles Using Path Forecasting	4613
<i>Georgia-Evangelia Katsargyri, Ilya V. Kolmanovsky, John Michelini, Ming L. Kuang, Anthony M. Phillips, Michael Rinehart, Munther A. Dahleh</i>	
Performance Comparison of Hybrid Vehicle Energy Management Controllers on Real-World Drive Cycle Data	4618
<i>Daniel F. Opila, Xiaoyong Wang, Ryan McGee, Jeffrey A. Cook, Jessy W. Grizzle</i>	

FRB02

OBSERVERS FOR NONLINEAR SYSTEMS

High-Gain-Observer Tracking Performance in the Presence of Measurement Noise	4626
<i>Alexis A. Ball, Hassan K. Khalil</i>	
Time-Varying High-Gain Trajectory Linearization Observer Design	4628
<i>Rui Huang, J. Jim Zhu</i>	
State Estimation of Nonlinear Systems Using Multiple Model Approach	4636
<i>Dalil Ichalal, Benoit Marx, Jose Ragot, Didier Maquin</i>	
POD Based Observer for Contaminant Flow Estimation in Building Systems	4642
<i>Martin Guay, Tyson John, Nathan Hariharan</i>	
Nonlinear Observers for Closed-Loop Control of a Combustion Engine Test Bench	4648
<i>Gabriella Reale, Peter Ortner, Luigi Del Re</i>	

FRB03

PID CONTROL

Adaptive Robust Control of a Class of Nonlinear Systems in Semi-Strict Feedback Form with Non-Uniformly Detectable Unmeasured Internal States	4654
<i>Lu Lu, Bin Yao</i>	
Modified ILMI Algorithm for Practical PID/PD Implementation on a Micro Air Vehicle	4660
<i>Neha Satak, M Seetharama Bhat</i>	
P SPR D and P SPR D I Control for Linear Multi-Variable Systems -Stabilization Based on High Gain Output Feedback-	4666
<i>Kiyotaka Shimizu</i>	
Adaptive PID Controller Design Based on Output Feedback Passivity for Discrete-Time Nonlinear Systems	4673
<i>Ikuro Mizumoto, Zenta Iwai</i>	
PSPRD Control and PISPRD Control for Affine Nonlinear Systems —Stabilization Theory Based on Passivity—	4680
<i>Kiyotaka Shimizu</i>	

A Multirate Autotuning PI with Improved Static Performance	4687
<i>Alberto Leva, Luigi Piroddi</i>	
Modified Relay Feedback Test: Industrial Loop Tuner Implementation and Experiments	4693
<i>Igor Boiko, Andrew Ernyes, Worku Oli, Edgar Tamayo</i>	

FRB04

MATHEMATICAL MODELING

Mathematic Modeling and Condition Monitoring of Power Station Tube-Ball Mill Systems	4699
<i>Jianlin Wei, Jihong Wang</i>	
An Optimal Control Model for Human Postural Regulation	4705
<i>Yao Li, William S. Levine</i>	
Block Diagram-Based Modeling of Manufacturing Systems Using Max-Plus Algebra	4711
<i>Aleksey Imaev, Robert P. Judd</i>	
Modeling and Control of Offshore Pipelay Operations Based on a Finite Strain Pipe Model	4717
<i>Gullik Anthon Jensen, Niklas Sjöström, Tu Duc Nguyen, Thor I. Fossen</i>	
Dangers of Two-Point Holonomic Constraints for Variational Integrators	4723
<i>Elliot Johnson, Todd Murphey</i>	
Dynamics and Control of Cable-Drogue System in Aerial Recovery of Micro Air Vehicles Based on Gauss's Principle.....	4729
<i>Liang Sun, Randy Beard, Mark Colton, Timothy W. McLain</i>	

FRB05

DISCRETE EVENT SYSTEMS

Distributed State Estimation in Discrete Event Systems.....	4735
<i>Songyan Xu, Ramesh Kumar</i>	
Verification and Synthesis for Secrecy in Discrete-Event Systems.....	4741
<i>Shigemasa Takai, Ramesh Kumar</i>	
Robust Invariance in Uncertain Discrete Event Systems with Applications to Transportation Networks.....	4747
<i>Ying Shang</i>	
Dynamic Sensor Activation for Event Diagnosis	4753
<i>Weilin Wang, Stephane Lafortune, Anouck Girard, Feng Lin</i>	
Modeling and Synthesis of DES Supervisory Control for Coordinating ULTC and SVC.....	4759
<i>Mohammad Noorbakhsh, Ali Akbar Afzalian</i>	
Observer Design for Untimed Continuous Petri Nets	4765
<i>Cristian Mahulea, Carla Seatzu, Maria Paola Cabasino, Laura Recalde, Manuel Silva</i>	

FRB06

MATERIALS PROCESSING APPLICATIONS

Stochastic Modeling of Film Porosity in Thin Film Deposition	4771
<i>Gangshi Hu, Panagiotis D. Christofides</i>	
Latent Variable MPC for Trajectory Tracking in Batch Processes: Role of the Model Structure	4779
<i>Masoud Golshan, John F. Macgregor, Mark-John Bruwer, Prashant Mhaskar</i>	
Optimal Design and Operation of a Multiscale GaAs/AlAs Deposition Process	4785
<i>Christopher Behrens, Antonios Armaou</i>	
Melt Pool Temperature Modeling and Control for Laser Metal Deposition Processes	4791
<i>Lie Tang, Robert G. Landers</i>	
Model Predictive Control of Film Porosity in Thin Film Deposition	4797
<i>Gangshi Hu, Panagiotis D. Christofides</i>	

Gain Scheduled H_∞ Controller Design for an Electrostatic Micro-Actuator with Squeezed Gas Film Damping Effects	4805
<i>Marialena Vagia, Anthony Tzes</i>	

FRB07

SPACECRAFT AND AEROSPACE APPLICATIONS

Distributed Control of Spacecraft Formation Via Cyclic Pursuit: Theory and Experiments	4811
<i>Jaime L Ramirez, Marco Pavone, Emilio Frazzoli, David W. Miller</i>	
Nonlinear Optimal Control of Spacecraft Approaching a Tumbling Target	4818
<i>Ming Xin, Hejia Pan</i>	
Control by Damping Injection of Electrodynamic Tether System in an Inclined Orbit	4824
<i>Martin Birkelund Larsen, Mogens Blanke</i>	
Inertia-Free Spacecraft Attitude Trajectory Tracking with Internal-Model-Based Disturbance Rejection and Almost Global Stabilization	4830
<i>Amit Sanyal, Adam Fosbury, Nalin A. Chaturvedi, Dennis S. Bernstein</i>	
Star Camera Calibration Combined with Independent Spacecraft Attitude Determination	4836
<i>Madhumita Pal, M Seetharama Bhat</i>	
Switching Congestion Control for Satellite TCP/AQM Networks	4842
<i>Jinhua Cao, Margareta Stefanovic</i>	

FRB08

MODEL PREDICTIVE CONTROL

Optimal Control of Gun-Turret Assembly in an Armored Tank Using Model Predictive Control	4848
<i>Gautam Kumar, Pradeep Tiwari, Vincent R. Marcopoli, Mayuresh V. Kothare</i>	
An Augmented Multiple Model Strategy for Disturbance Estimation and Control	4854
<i>Matthew Kuure-Kinsey, B. Wayne Bequette</i>	
Model Predictive Control of Feed Flow Reversal in a Reverse Osmosis Desalination Process	4860
<i>Alex Bartman, Charles McFall, Panagiotis D. Christofides</i>	
A New Nonlinear Model Predictive Control Algorithm Using Differential Transformation with Application to Interplanetary Low-Thrust Trajectory Tracking	4868
<i>Rosemary Huang, Inseok Hwang, Martin J. Corless</i>	
An Output Feedback Robust Model Predictive Controller Design Based on Quasi-Min Max Algorithm	4874
<i>Mohammad Hadi Zibaenejad, Vahid J. Majd</i>	
Delay-dependent Robust Model Predictive Control for Time-delay Systems with Input Constraints	4880
<i>Yujing Shi, Tianyou Chai, Hong Wang, Chun-Yi Su</i>	

FRB09

DELAY SYSTEMS I

Tracking Performance under Time Delay and Asynchronicity in Distributed Camera Systems	4886
<i>Klementyna Szwaykowska, Fumin Zhang, Wayne Wolf</i>	
Stabilization of Linear Uncertain Delay Systems Irrespective of Bounds of Uncertain Variations	4892
<i>Tomoaki Hashimoto, Takashi Amemiya</i>	
Asymptotic Stability of Constant Time Headway Driving Strategy with Multiple Driver Reaction Delays	4898
<i>Rifat Sipahi, Silviu-Iulian Niculescu, Ismail Ilker Delice</i>	
New Results of Stability Analysis for Singular Time-Delay Systems	4904
<i>Xun-Lin Zhu, Guang-Hong Yang</i>	
On Stability of Time Delay Hamiltonian Systems	4909
<i>Ramkrishna Pasumarthy, Chung-Yao Kao</i>	
A Class of Neutral-Type Delay Differential Equations That Are Effectively Retarded	4915
<i>Anton A. Stoorvogel, Sandip Roy, Yan Wan, Ali Saberi</i>	

FRB10

CONTROL AND SYSTEMS

Dynamic Processor Allocation for Multiple RHC Systems in Multi-Core Computing Environments	4921
<i>Ali Azimi, Brandon Gordon</i>	

Stability Robustness Conditions for Gradient Play Differential Games with Partial Participation in Coalitions	4927
<i>Tanja Annette Brown, Nghia Tran, Sean Warnick</i>	
Toward a Flexible Control Design Framework to Automatically Generate Control Code for Mechatronic Systems	4933
<i>Ö. Aydın Tekin, R. Babuska, Tetsuo Tomiyama, Bart De Schutter</i>	
Experimental Verification of Saturation Reducing, Zero Vibration Command Shapers	4939
<i>Michael Robertson</i>	
Exponential Stability and Static Output Feedback Stabilization of Singular Time-Delay Systems with Saturating Actuators	4945
<i>Ahmad Haidar, El-Kebir Boukas, Shengyuan Xu, James Lam</i>	
Sliding Mode Optimal Regulator for a Bolza-Meyer Criterion with Non-Quadratic State Energy Terms	4951
<i>Michael V. Basin, Dario Calderon-Alvarez, Antonella Ferrara, Francesco Dinuzzo</i>	

FRB11

FAULT DETECTION AND ACCOMODATION III

Distributed Triangulation in the Presence Faulty and Byzantine Beacons in Aircraft Networks with ADS-B Technology	4956
<i>Daniel Uhlig, Negar Kiyavash, Natasha A. Neogi</i>	
Fault Detection for Aircraft Control Surfaces Using Approximate Input Reconstruction	4962
<i>Haoyun Fu, Jin Yan, Mario Santillo, Harish Palanhandalam-Madapusi, Dennis S. Bernstein</i>	
Detecting Intrusion Faults in Remotely Controlled Systems	4968
<i>Salvatore Candido, Seth Hutchinson</i>	
Multi-Decision Decentralized Prognosis of Failures in Discrete Event Systems	4974
<i>Ahmed Khoumsi, Hicham Chakib</i>	
A Neural-Fuzzy Sliding Mode Observer for Robust Fault Diagnosis	4982
<i>Qing Wu, Mehrdad Saif</i>	
A Model Based Fault Detection and Accommodation Scheme for Nonlinear Discrete-Time Systems with Asymptotic Stability Guarantee	4988
<i>Balaje Thumati, Sarangapani Jagannathan</i>	
Petri Nets and Programming: A Survey	4994
<i>Marian Iordache, Panos J. Antsaklis</i>	
Minimum Initial Marking Estimation in Labeled Petri Nets	5000
<i>Lingxi Li, Christoforos Hadjicostis</i>	
Efficient Deadlock Prevention in Petri Nets through the Generation of Selected Siphons	5006
<i>Luigi Piroddi, Roberto Cordone, Ivano Fumagalli</i>	

FRB12

PETRI NETS: THEORY AND APPLICATIONS

Petri Nets Control Design for Hybrid Electrical Energy Systems	5012
<i>Dimitri Lefebvre, Francois Guerin, Badara Mboup, Pape Ndiaye</i>	
Efficient State-Based Analysis by Introducing Bags in Petri Nets Color Domains	5018
<i>Serge Haddad, Fabrice Kordon, Laure Petrucci, Jean-Francois Pradat-Peyre, Nicolas Treves</i>	
Basic Qualitative Properties of Petri Nets with Multi-Guarded Transitions	5026
<i>Jorge Julvez</i>	

FRB13

SYSTEM IDENTIFICATION

Parameter Estimation Algorithms for Missing-Data Systems	5032
<i>Feng Ding, Jie Ding</i>	
Stochastic Adaptive Learning Rate in an Identification Method: An Approach for On-Line Drilling Processes Monitoring	5037
<i>Amadou Ba, Slim Hbaieb, Mechbal Nazih, Michel Vergé</i>	
Off-Road Vehicle Sprung Mass Identification from Suspension Measurements	5043
<i>Benjamin Pence, Hosam K. Fathy, Jeffrey L. Stein</i>	
Mobile Sensor Networks for Learning Anisotropic Gaussian Processes	5049
<i>Yunfei Xu, Jongeun Choi</i>	

Robust Parameter Identification with Adaptive Sparse Grid-Based Optimization for Nonlinear Systems Biology Models	5055
<i>Maia Donahue, Gregory Buzzard, Ann E. Rundell</i>	
Parameter Estimation with Missing Input/Output Data	5061
<i>Yang Shi, Huazhen Fang, Jian Wu</i>	

FRB14
STOCHASTIC SYSTEMS II

System Reliability Estimation and Confidence Regions from Subsystem and Full System Tests	5067
<i>James C. Spall</i>	
Duty Ratio Control of a Rotary PWM Valve with Periodic Measurement Error	5073
<i>Meng Wang, Perry Y. Li</i>	
A Control Allocation Approach for Energetic Swarm Control	5079
<i>Reza Pedrami, Sivaram Wijenddra, Jamie Baxter, Brandon, W. Gordon</i>	
Estimation of an Affine Motion	5085
<i>Lili Ma, Chengyu Cao, Naira Hovakimyan, Craig Woolsey, Guoqiang Hu</i>	
L1 Adaptive Output Feedback Controller for Nonlinear Systems in the Presence of Unmodelled Dynamics	5091
<i>Enric Xargay, Naira Hovakimyan, Chengyu Cao</i>	
Decentralized Stochastic Guaranteed Cost Control for Uncertain Nonlinear Large-Scale Interconnected Systems under Gain Perturbations	5097
<i>Hiroaki Mukaidani</i>	

FRB17
TOPICS IN CONTROL II

New H_∞ Controller Design Method for Networked Control Systems with Quantized State Feedback	5103
<i>Xun-Lin Zhu, Guang-Hong Yang</i>	
Output Tracking Control for Discrete-Time Networked Control Systems	5109
<i>Yu-Long Wang, Guang-Hong Yang</i>	
Control of a Rope-Driven Self-Leveling Device for Leveling Adjustment	5115
<i>Yi Yu, Jianqiang Yi, Chengdong Li, Dongbin Zhao, Jianhong Zhang</i>	
Dynamic Output Feedback Control for a Class of Stochastic Time-Delay Systems	5121
<i>Lin Li, Yingmin Jia, Junping Du, Shiyong Yuan</i>	
Discrete-Time Non-Fragile Dynamic Output Feedback H-Infinity Controller Design	5126
<i>Guang-Hong Yang, Wei-Wei Che</i>	
LMI Characterizations of Positive Realness and Static Output Feedback Positive Real Control of Discrete-Time Systems	5132
<i>Guang-Hong Yang, Xin Du</i>	

FRB18
ADAPTIVE CONTROL OF NONLINEAR SYSTEMS II

L1 Adaptive Output Feedback Controller for Non Strictly Positive Real Multi-Input Multi-Output Systems in the Presence of Unknown Nonlinearities	5138
<i>Chengyu Cao, Naira Hovakimyan</i>	
Lyapunov Redesign of Adaptive Controllers for Polynomial Nonlinear Systems	5144
<i>Qian Zheng, Fen Wu</i>	
Nonlinearly Parameterized Adaptive PID Control for Parallel and Series Realizations	5150
<i>Khalid El Rifai</i>	
Asymptotically Stable Adaptive Critic Design for Uncertain Nonlinear Systems	5156
<i>Jianguo Yao, Xue Liu, Xiaoping Zhu</i>	
Stable Multiple Model Adaptive Control of Nonlinear Multivariable Discrete-Time Systems	5162
<i>Yue Fu, Tianyou Chai, Hong Wang</i>	

Self-Tuning Control of Dual-Rate Systems with Input Nonlinearities	5168
<i>Yongsong Xiao, Huibo Chen, Jiyang Dai, Feng Ding</i>	

FRB19

AGENT-BASED SYSTEMS II

A Real Time Implementable All-Pair Dynamic Planning Algorithm for Robot Navigation Based on the Renormalized Measure of Probabilistic Regular Languages	5174
<i>Wei Lu, Ishanu Chattopadhyay, Goutham Mallapragada, Asok Ray</i>	
Probabilistic Guarantees for Rendezvous under Noisy Measurements	5180
<i>Carlos Caicedo, Milos Zefran</i>	
Sampled-Data Formation Control under Dynamic Directed Interaction	5186
<i>Yongcan Cao, Wei Ren</i>	
Consensus in Hierarchical Multi-Agent Dynamical Systems with Low-Rank Interconnections: Analysis of Stability and Convergence Rates	5192
<i>Shinji Hara, Hikaru Shimizu, Tae-Hyoung Kim</i>	
An Event Driven Decision Support Algorithm for Command and Control of UAV Fleets	5198
<i>Oktay Arslan, Gokhan Inalhan</i>	
LQR-based Optimal Linear Consensus Algorithms	5204
<i>Yongcan Cao, Wei Ren</i>	

FRB20

MODELING AND CONTROL TO FACILITATE REAL-TIME HYBRID SIMULATION IN STRUCTURAL ENGINEERING

On the Computation of Compatible Trajectories for Hydraulic Shaketables	5210
<i>John Hauser, Mettupalayam Sivaselvan</i>	
Stability Analysis of Central Difference Method for Dynamic Real-time Substructure Testing	5216
<i>Bin Wu, Lixia Deng, Zhen Wang, Xiandong Yang</i>	
Servo-Hydraulic Actuator Control for Real-Time Hybrid Simulation	5222
<i>Cheng Chen, James Ricles</i>	
Comparison of Real-Time Hybrid Testing with Shake Table Tests for an MR Damper Controlled Structure	5228
<i>Richard Christenson, Yi Zhong Lin</i>	
Real-Time Hybrid Testing of a Semi-Actively Controlled Structure with an MR Damper	5234
<i>Juan Carrion, B. F. Spencer, Brian Phillips</i>	
Implicit Numerical Integration in Hybrid Simulation with Iteration Strategy for Experimental Substructures	5241
<i>Gilberto Mosqueda, Mehdi Ahmadi-zadeh</i>	

FRC01

VISION-BASED CONTROL

Vision-Based Local Multi-Resolution Mapping and Path Planning for Miniature Air Vehicles	5247
<i>Huili Yu, Randy Beard, Jeffrey Byrne</i>	
Vision-Based Reactive Multiple Obstacle Avoidance for Micro Air Vehicles	5253
<i>Jeff Saunders, Randy Beard, Jeffrey Byrne</i>	
Keeping Multiple Objects in the Field of View of a Single PTZ Camera	5259
<i>Nicholas Gans, Guoqiang Hu, Warren E. Dixon</i>	
Underwater Target Following with a Vision-Based Autonomous Robotic Fish	5265
<i>Yonghui Hu, Wei Zhao, Long Wang, Yingmin Jia</i>	
Position-Based Visual Servo Control of Leader-Follower Formation Using Image-Based Relative Pose and Relative Velocity Estimation	5271
<i>Ashwin Dani, Nicholas Gans, Warren E. Dixon</i>	

Vision Based Flexible Beam Tip Point Control	5277
<i>Yunjun Xu, Erich Ritz</i>	

FRC02

NONLINEAR CONTROL AND ESTIMATION

Stochastic Control for a Class of Overtaking Tracking Problems: Risk-Averse Feedback Design for Performance Robustness	5283
<i>Khanh D. Pham</i>	
Swinging-Up and Stabilization Control Based on Natural Frequency for Pendulum Systems	5291
<i>Noriko Matsuda, Masaki Izutsu, Jun Ishikawa, Katsuhisa Furuta, Karl J. Astrom</i>	
Adaptive Observer Design for a Class of Nonlinear Time-Delay Systems in Lower-Triangular Form	5297
<i>Salim Ibrir</i>	
Reduced Order Observer Design for Nonlinear Systems with Control Applications	5303
<i>Zhengtao Ding</i>	
Observer Design for Polynomial Systems with Bounded Disturbances	5309
<i>Hiroyuki Ichihara</i>	

FRC03

OUTPUT REGULATION

Certainty-Equivalence Design for Output Regulation of a Nonlinear Benchmark System	5315
<i>Fabio Celani</i>	
Output Regulation for a Class of Weakly Minimum Phase Systems and Its Application to a Nonlinear Benchmark System	5321
<i>Yu Jiang, Jie Huang</i>	
Output Regulation for a Class of Nonlinear Systems Using the Observer Based Output Feedback Control	5327
<i>Dabo Xu, Jie Huang</i>	
Finite Difference Solution of Discrete-Time Regulator Equation and Its Application to Digital Output Regulation Problem	5333
<i>Branislav Rehak, Sergej Celikovsky</i>	
A Novel Internal Model-Based Tracking Control for a Class of Linear Time-Varying Plants	5339
<i>Zhen Zhang, Zongxuan Sun</i>	

FRC06

COMPUTATIONAL METHODS AND OPTIMIZATION

The Continuous Closed Form Controllability Gramian and Its Inverse	5345
<i>Anna Soffia Hauksdottir, Sven Th. Sigurdsson</i>	
Derivative-Free Family of Higher Order Root Finding Methods	5351
<i>Mohammed A. Hasan</i>	
Parameter-Dependent Slack Variable Approach for Positivity Check of Polynomials over Hyper-Rectangle	5357
<i>Masayuki Sato</i>	
Ellipsoidal Approximations to Attraction Domains of Linear Systems with Bounded Control	5363
<i>Boris T. Polyak, Pavel Shcherbakov</i>	
Feasibility Analysis on Optimal Sensor Selection in Cyber-physical Systems	5368
<i>Zhen Song, Chellury Ram Sastry, Nazif Cihan Tas, Yangquan Chen</i>	

FRC07

CONTROL OF AIR VEHICLES

An Optimal Timing Approach to Controlling Multiple UAVs	5374
<i>Xu Chu Ding, Matt Powers, Magnus Egerstedt, Ryan Young</i>	
A New State Observer and Flight Control of Highly Maneuverable Aircraft	5380
<i>Ming Xin, S. N. Balakrishnan</i>	
Departure Resilient Control for Autonomous Air Vehicles	5386
<i>James A. Ramsey, Ryan T. Ratliff, Kevin A. Wise, Eugene Lavretsky</i>	
Reduction of Travel Times and Traffic Emissions Using Model Predictive Control	5392
<i>Solomon Kidane Zegeye, Bart De Schutter, Hans Hellendoorn, Ewald Breunese</i>	

A Robust Environment for Simulation and Testing of Adaptive Control for Mini-UAVs	5398
<i>Manohar Srikanth, Zachary Dydek, Anuradha Annaswamy, Eugene Lavretsky</i>	
Position and Velocity Optimal Sensor-based Navigation Filters for UAVs	5404
<i>Pedro T. M. Batista, Carlos Silvestre, Paulo Jorge Oliveira</i>	

FRC08

DYNAMIC CLASSIFICATION AND CLUSTERING

A New Support Vector Machine for Microarray Classification and Adaptive Gene Selection	5410
<i>Juntao Li, Yingmin Jia, Junping Du, Fashan Yu</i>	
Underwater Mine Detection Using Symbolic Pattern Analysis of Sidescan Sonar Images	5416
<i>Chinmay Rao, Kushal Mukherjee, Shalabh Gupta, Asok Ray, Shashi Phooha</i>	
Symbolic Analysis of Time Series Signals Using Generalized Hilbert Transform	5422
<i>Soumik Sarkar, Kushal Mukherjee, Asok Ray</i>	
Estimation of the Dynamics of Clusters	5428
<i>Daniele Casagrande, Mario Sassano, Alessandro Astolfi</i>	
Comparing Apples and Oranges through Partial Orders: An Empirical Approach	5434
<i>Peter Kingston, Magnus Egerstedt</i>	
Regional Source Localization	5440
<i>Sandra Hala Dandach, Francesco Bullo</i>	

FRC09

DELAY SYSTEMS II

Delay-Dependent Robust Stability Criteria for Neutral Singular Systems with Time-Varying Delays and Nonlinear Perturbations	5446
<i>Huijiao Wang, Anke Xue</i>	
Further Results on Lyapunov-Krasovskii Functionals via Nonlinear Small-Gain Conditions for Interconnected Retarded iISS Systems	5452
<i>Hiroshi Ito, Pierdomenico Pepe, Zhong-Ping Jiang</i>	
Delay-Independent Stabilization for Teleoperation with Time Varying Delay	5459
<i>Hiroyuki Fujita, Toru Namerikawa</i>	
A Delay Decomposition Approach to Stability Analysis of Discrete-Time Systems with Time-Varying Delay	5465
<i>Xun-Lin Zhu, Guang-Hong Yang</i>	
On Robust Stability of Uncertain Neutral Systems with Discrete and Distributed Delays	5469
<i>Jian Sun, Jie Chen, Guoping Liu, David Rees</i>	
An LMI Approach to Hinf Synchronization of Second-Order Neutral Master-Slave Systems	5474
<i>Hamid Reza Karimi, Mauricio Zapateiro, Ningsu Luo, Josep M. Rossell</i>	

FRC10

CONTROL APPLICATIONS III

Fine and Simplified Dynamic Modelling of Complex Hydraulic Systems	5480
<i>Wilber Acuna-Bravo, Enrico S. Canuto, Stefano Alberto Malan, Davide Colombo, Marco Forestello, Riccardo Morselli</i>	
Control of Ironless Permanent Magnet Linear Synchronous Motor Using Fast Terminal Sliding Mode Control with Iterative Learning Control	5486
<i>Yiqiang Li, Yaobin Chen, Huixing Zhou</i>	
Active Noise Blocking: Non-Minimal Modeling, Robust Control, and Implementation	5492
<i>Tansel Yucelen, Farzad Pourboghra</i>	
Active Suspension Control with Direct-Drive Tubular Linear Brushless Permanent-Magnet Motor	5498
<i>Seungho Lee, Won-Jong Kim</i>	
Cooperative Control for Trajectory Tracking of Robotic Fish	5504
<i>Kexu Zou, Chen Wang, Guangming Xie, Tianguang Chu, Long Wang, Yingmin Jia</i>	

Obstacle Avoiding Real-Time Trajectory Generation and Control of Omnidirectional Vehicles	5510
<i>Ji-Wung Choi, Renwick Curry, Gabriel Hugh Elkaim</i>	

FRC11

FAULT TOLERANT SYSTEMS

Adaptive Fault-Tolerant H_∞ Compensation Controller Design with Actuator Failures	5516
<i>Xiao-Zheng Jin, Guang-Hong Yang</i>	
Self-Repairing Control Based on Switching Sensors	5522
<i>Masanori Takahashi</i>	
Adaptive Robust Tracking Control for a Class of Distributed Systems with Faulty Actuators and Interconnections	5528
<i>Xiao-Zheng Jin, Guang-Hong Yang</i>	
Robust Fault-Tolerant Control Using On-Line Control Re-Allocation with Application to Aircraft	5534
<i>Sijun Ye, Youmin Zhang, Xinmin Wang, Camille Alain Rabbath</i>	
An LMI Approach to Mixed H_2/H_∞ Robust Fault-Tolerant Control Design with Uncertainties	5540
<i>Sijun Ye, Youmin Zhang, Camille Alain Rabbath, Xinmin Wang, Yan Li</i>	
Reliable H_∞ Dynamic Output Feedback Synthesis for Linear Systems	5546
<i>Guang-Hong Yang, Xiao-Ni Zhang</i>	

FRC12

MANUFACTURING CONTROL

Benchmark Tests of Active Disturbance Rejection Control on an Industrial Motion Control Platform	5552
<i>Gang Tian, Zhiqiang Gao</i>	
GPC-Based Remote Control for Hydraulic Position Control Systems in a Networked Environment	5558
<i>Yang Shi, Bo Yu</i>	
Local Minimum Time Trajectory Planning for Five-Axis Machining with or without Deflection	5564
<i>Xin Wu, Yaoyu Li, Song Liu, Ronald A. Perez</i>	
Improved Part Quality in Stamping Using Multi-Input Multi-Output (MIMO) Process Control	5570
<i>Yongseob Lim, Ravinder Venugopal, A. Galip Ulsoy</i>	
Design and Implementation of a General Tracking Controller for Friction Stir Welding Processes	5576
<i>Thomas Oakes, Robert G. Landers</i>	
Layer-to-Layer Height Control of Laser Metal Deposition Processes	5582
<i>Lie Tang, Jianzhong Ruan, Todd Sparks, Robert G. Landers, Frank Liou</i>	

FRC13

IDENTIFICATION METHODS

A Fast Joint Tracking-Registration Algorithm for Multi-Sensor Systems	5588
<i>Shuqing Zeng</i>	
Multi-Innovation Stochastic Gradient Algorithm for Output Error Systems Based on the Auxiliary Model	5594
<i>Dongqing Wang, Feng Ding, Peter X. Liu</i>	
FIR Systems Identification Using Higher-Order Statistics	5598
<i>Kamel Abderrahim</i>	
Recursive Least Squares Identification for Multirate Multi-input Single-output Systems	5604
<i>Lili Han, Jie Sheng, Feng Ding, Yang Shi</i>	
Performance Improvement in Adaptive Control of Nonlinear Systems	5610
<i>Martin Guay, Veronica Adetola</i>	
Nonlinear Active Noise Control Using NARX Model Structure Selection	5616
<i>Roberto Napoli, Luigi Piroddi</i>	

FRC14

STOCHASTIC ADAPTIVE CONTROL

Stochastic Extremum Seeking with Applications to Mobile Sensor Networks	5622
<i>Milos S. Stankovic, Dusan M. Stipanovic</i>	
Adaptive Clubs-Based Particle Swarm Optimization	5628
<i>Hassan M. Emar</i>	

On the Adaptive Control of a Class of Partially Observed Markov Decision Processes	5635
<i>Shun-Pin Hsu, Dong-Ming Chuang, Ari Arapostathis</i>	
Adaptive Rejection of Stochastic and Deterministic Sinusoidal Disturbances with Unknown Frequency	5641
<i>Yigang Wang, Kevin Chu, Tsu-Chin Tsao</i>	
Adaptive Intervention in Probabilistic Boolean Networks	5647
<i>Ritwik Layek, Aniruddha Datta, Ranadip Pal, Edward Dougherty</i>	
On Identification of Input/Output Extended Automata with Finite Bisimilar Quotients	5653
<i>Changyan Zhou, Ratnesh Kumar</i>	

FRC17

TOPICS IN CONTROL III

Discrete-Time Quantized H-Infinity Filtering with Quantizer Ranges Consideration	5659
<i>Wei-Wei Che, Guang-Hong Yang</i>	
On the Controllability of Multiple Dynamic Agents with Fixed Topology	5665
<i>Fangcui Jiang, Long Wang, Guangming Xie, Zhijian Ji, Yingmin Jia</i>	
Adaptive Fuzzy Dead-Zone Control for Unknown Nonlinear Systems	5671
<i>Ping Li, Guang-Hong Yang</i>	
Analysis and Design of Output Feedback Control Systems in the Presence of State Saturation	5677
<i>Wei Guan, Guang-Hong Yang</i>	
H_∞ Filtering for a Class of Discrete-Time Switched Linear Systems	5683
<i>Da-Wei Ding, Guang-Hong Yang</i>	
Distributed Robust Adaptive Tracking Control with Lossy Interconnection Links and Bounded Disturbances	5689
<i>Xiao-Zheng Jin, Guang-Hong Yang</i>	

FRC18

REDUCED ORDER MODELING

New Results on Partial Fraction Expansion Based Frequency Weighted Balanced Truncation	5695
<i>Shafishuhaza Sahlan, Victor Sreeram</i>	
Linf-Gain Model Reduction for Discrete-Time Systems Via LMIs	5701
<i>Simone Schuler, Frank Allgower</i>	
Singular Value Decomposition for a Class of Linear Time-Varying Systems and Its Application to Switched Linear Systems	5707
<i>Naoyuki Hara, Hideki Kokame, Keiji Konishi</i>	
Reduced Dimension Control Based on Online Recursive Principal Component Analysis	5713
<i>Jianguo Yao, Xue Liu, Xiaoyun Zhu</i>	
Frequency-Domain Weighted RLS Model Reduction for Complex SISO Linear System	5719
<i>Ping Zhou, Tianyou Chai, Qiang Liu, Hong Wang, Chun-Yi Su</i>	
H_∞ Model Reduction of Linear Continuous-time Systems over Finite Frequency Interval-LMI based Approach	5725
<i>Xin Du, Guang-Hong Yang</i>	

FRC19

MULTI-AGENT SYSTEMS

Positional Consensus in Multi-Agent Systems Using a Broadcast Control Mechanism	5731
<i>Kaushik Das, Debasish Ghose</i>	
A Cooperative Multi-Agent Approach for Stabilizing the Psychological Dynamics of a Two-Dimensional Crowd	5737
<i>Kevin Spiesser, Daniel E. Davison</i>	
Structural Controllability of Multi-Agent Systems	5743
<i>Mohsen Zamani, Hai Lin</i>	
Constrained Invariant Motions for Networked Multi-Agent Systems	5749
<i>Mauro Franceschelli, Magnus Egerstedt, Alessandro Giua, Cristian Mahulea</i>	
Decentralized H_∞ Filtering in a Multi-Agent System	5755
<i>Thomas R Nelson, Randy Freeman</i>	

Distributed Decision Making for Task Switching Via a Consensus-Like Algorithm	5761
<i>Jay Wagenpfeil, Adrian Trachte, Takeshi Hatanaka, Masayuki Fujita, Oliver Sawodny</i>	

FRC20

CONTROL OF NETWORKS II

Synchronization of a Class of Dynamical Complex Networks with Nonsymmetric Coupling Based on Decentralized Control	5767
<i>Haiqing Zheng, Yuanwei Jing, Xiuping Zheng, Nan Jiang</i>	
Exponential Synchronization of Complex Delayed Dynamical Networks Consisting of Lur'e Systems	5772
<i>Yuanwei Jing, Haiqing Zheng, Yucheng Zhou, Yan Zheng</i>	
On Decentralized Stabilization of Discrete-Time Nonlinear Systems	5777
<i>Andrej Jokic, Mircea Lazar</i>	
Stabilization of Complex Switched Networks with Two Types of Delays Via Impulsive Control	5783
<i>Meng Yang, Yan-Wu Wang, Hua O. Wang, Hiroshi Ohtake, Kazuo Tanaka, Jiang-Wen Xiao</i>	
An Individual-Based Evolutionary Dynamics Model for Networked Social Behaviors	5789
<i>Islam Hussein</i>	
Adaptive Control of Sensor Networks for Detection of Percolating Faults	5797
<i>Abhishek Srivastav, Asok Ray, Shashi Phoha</i>	

Abstracts

Author Index