

# **24th International Symposium on Mathematical Theory of Networks and Systems (MTNS 2020)**

Cancelled due to COVID-19

IFAC PapersOnline Volume 54, Issue 9

Cambridge, United Kingdom  
24 – 28 August 2020

**Editor:**

**Rodolphe Sepulchre**

ISBN: 978-1-7138-3453-3

**Printed from e-media with permission by:**

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



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

To the extent permissible under applicable laws, no responsibility is assumed by the Owner, the Publisher or the Licensee for any injury and/or damage to persons or property as a result of any actual or alleged libelous statements, infringement of intellectual property or privacy rights, or products liability, whether resulting from negligence or otherwise, or from any use or operation of any ideas, instructions, procedures, products or methods contained in the material therein.

The publication of an advertisement in the POD Edition does not constitute on the part of the Owner, the Publisher or the Licensee a guarantee or endorsement of the quality or value of the advertised products or services described therein or of any of the representations or the claims made by the advertisers with respect to such products or services.

Copyright© (2021) by IFAC (International Federation of Automatic Control)  
All rights reserved.

Printed with permission by Curran Associates, Inc. (2021)

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

Elsevier Limited  
The Boulevard, Langford Lane  
Kidlington  
Oxford OX5 1GB UK

**Additional copies of this publication are available from:**

Curran Associates, Inc.  
57 Morehouse Lane  
Red Hook, NY 12571 USA  
Phone: 845-758-0400  
Fax: 845-758-2633  
Email: [curran@proceedings.com](mailto:curran@proceedings.com)  
Web: [www.proceedings.com](http://www.proceedings.com)

# TABLE OF CONTENTS

AN INVERSE PROBLEM FOR LTV ODE'S.....	1
<i>Erik I. Verriest</i>	
A STUDY OF THIRD ORDER BIMODAL SWITCHED SYSTEM .....	7
<i>Keyur Mistry, Harish K. Pillai</i>	
STABILITY OF CLUSTER FORMATIONS IN ADAPTIVE KURAMOTO NETWORKS.....	14
<i>Petro Feketa, Alexander Schaum, Thomas Meurer</i>	
POWER LAW DYNAMICS ON GRAPHS AND CHEMICAL REACTION NETWORKS.....	20
<i>Herbert Mangesius</i>	
A LOAD ‘JUGGLING’ APPROACH TO REACTIVE POWER COMPENSATION.....	28
<i>Dimitri Jeltsema</i>	
OSCILLATOR NETWORKS: DELAYS AND SYNCHRONIZATION.....	32
<i>Daniela Danciu, Vladimir Rásvan</i>	
SYSTEMS THEORETIC PROPERTIES OF LINEAR RLC CIRCUITS .....	38
<i>Timo Reis, Fedor Glazov</i>	
PROPER CLOSED-LOOP SPECIFICATIONS FOR DATA-DRIVEN MODEL-REFERENCE CONTROL.....	46
<i>Valentina Breschi, Simone Formentin</i>	
DISTRIBUTED-BASED INTEGRAL ACTION FOR CURRENT SHARING AND AVERAGE VOLTAGE REGULATION IN DC MICROGRIDS.....	52
<i>Sifeddine Benahmed, Pierre Riedinger, Serge Pierfederici</i>	
STABILIZATION OF MULTI-AGENT SYSTEMS TO TARGET DISTRIBUTIONS USING LOCAL INTERACTIONS.....	60
<i>Shiba Biswal, Karthik Elamvazhuthi, Spring Berman</i>	
SCALABLE DISTRIBUTED H2 CONTROLLER SYNTHESIS FOR INTERCONNECTED LINEAR DISCRETE-TIME SYSTEMS .....	66
<i>Tom R. V. Steentjes, Mircea Lazar, Paul M. J. Van Den Hof</i>	
SET STABILITY OF INFINITE NETWORKS: ISS SMALL-GAIN THEORY AND ITS APPLICATIONS.....	72
<i>Navid Noroozi, Andrii Mironchenko, Christoph Kawan, Majid Zamani</i>	
SCALE-INVARIANT CONTROLLER SYNTHESIS IN MASS CHAINS.....	78
<i>Kaoru Yamamoto</i>	
SCALABLE CONTROL DESIGN FOR K-POSITIVE LINEAR SYSTEMS .....	84
<i>Yu Kawano, Fulvio Forni</i>	
DYNAMICAL SYSTEMS AND INTERBANK NETWORKS .....	90
<i>John G. Leventides, Costas Poullos</i>	
DISTRIBUTED SAFE LEARNING USING AN INVARIANCE-BASED SAFETY FRAMEWORK.....	95
<i>Andrea Carron, Jerome Sieber, Melanie N. Zeilinger</i>	

ADAPTIVE TIME STEPPING FOR COMMUTATOR FREE LIE GROUP INTEGRATORS.....	103
<i>Brynjulf Owren, Charles Curry</i>	
ORIENTATION OF IMPLICIT STATE SPACE MODELS AND THE PARTITIONING OF KRONECKER STRUCTURE .....	108
<i>Nicos Karcanias, Dimitris Vafiadis, Maria Livada</i>	
STATE REALIZATIONS OF 2-PERIODIC CONVOLUTIONAL CODES: A SWITCHING SYSTEM APPROACH.....	114
<i>E. Fornasini, D. Napp, R. Pereira, R. Pinto, P. Rocha</i>	
EMPIRICAL COMPUTATION OF REACHABILITY GRAMIAN FOR LINEAR-TIME VARYING SYSTEMS.....	119
<i>Kasturi Das, Srinivasan Krishnaswamy, Somanath Majhi</i>	
REACHABILITY-BASED APPROACH TO DESIGN INTERVAL STATE OBSERVERS .....	125
<i>N. Meslem, A. Hably</i>	
CASE STUDIES OF GAMES BY SELF-INTERESTED AGENTS WITH TOTALLY POSITIVE EXTERNALITIES .....	131
<i>Adrianto Ravi Ibrahim, Tomohisa Hayakawa</i>	
A COLUMN SPACE BASED APPROACH TO SOLVE SYSTEMS OF MULTIVARIATE POLYNOMIAL EQUATIONS.....	137
<i>Christof Vermeersch, Bart De Moor</i>	
ATTASIND SYSTEMS AND POLYNOMIAL SYSTEM SOLVING .....	145
<i>Bernard Hanzon</i>	
TWO-DIMENSIONAL DESCRIPTOR SYSTEMS.....	151
<i>Bob Vergauwen, Bart De Moor</i>	
MULTIPARAMETER EIGENVALUE PROBLEMS AND SHIFT-INVARIANCE .....	159
<i>Katrien De Cock, Bart De Moor</i>	
A HOMOTOPY APPROACH TO COHERENT QUANTUM LQG CONTROL SYNTHESIS USING DISCOUNTED PERFORMANCE CRITERIA.....	166
<i>Igor G. Vladimirov, Ian R. Petersen</i>	
REALIZATION FORMULAS FOR INVOLUTIONS OF MATRIX-VALUED POSITIVE REAL ODD FUNCTIONS.....	172
<i>S. Ter Horst, A. Naudé</i>	
OUTPUT TRACKING FOR A NON-MINIMUM PHASE ROBOTIC MANIPULATOR .....	178
<i>Thomas Berger, Lukas Lanza</i>	
ON GEOMETRIC AND DIFFERENTIATION INDEX OF NONLINEAR DIFFERENTIAL- ALGEBRAIC EQUATIONS .....	186
<i>Yahao Chen, Stephan Trenn</i>	
FORMAL POWER SERIES APPROACH TO NONLINEAR SYSTEMS WITH STATIC OUTPUT FEEDBACK.....	192
<i>G. S. Venkatesh, W. Steven Gray</i>	
DISTURBANCE DECOUPLING FOR POLYNOMIAL SYSTEMS.....	199
<i>Melanie Harms, Eva Zerz</i>	

ASYMPTOTIC BEHAVIOUR OF A SYSTEM MODELLING RIGID STRUCTURES FLOATING IN A VISCOUS FLUID .....	205
<i>Gastón Vergara-Hermosilla, Denis Matignon, Marius Tucsnak</i>	
EVENT-TRIGGERED DYNAMIC OUTPUT FEEDBACK CONTROLLER FOR DISCRETE- TIME LPV SYSTEMS WITH CONSTRAINTS .....	213
<i>C. De Souza, S. Tarbouriech, E. B. Castelan, V. J. S. Leite</i>	
REDUCED ORDER FAST CONVERGING OBSERVER FOR SYSTEMS WITH DISCRETE MEASUREMENTS .....	219
<i>Frédéric Mazenc, Michael Malisoff, Zhong-Ping Jiang</i>	
AN OPERATOR THEORETIC APPROACH TO THE $3X + 1$ DYNAMICAL SYSTEM .....	225
<i>John Leventides, Costas Poullos</i>	
CONTINUITY OF CHEN-FLIESS SERIES FOR APPLICATIONS IN SYSTEM IDENTIFICATION AND MACHINE LEARNING .....	231
<i>Rafael Dahmen, W. Steven Gray, Alexander Schmeding</i>	
ROBUST OUTPUT FEEDBACK CONSENSUS FOR NETWORKED IDENTICAL NONLINEAR NEGATIVE-IMAGINARY SYSTEMS .....	239
<i>Kanghong Shi, Igor G. Vladimirov, Ian R. Petersen</i>	
ON A FLAT TRIANGULAR FORM BASED ON THE EXTENDED CHAINED FORM.....	245
<i>Conrad Gstöttner, Bernd Kolar, Markus Schöberl</i>	
EQUIVARIANT FILTER DESIGN FOR KINEMATIC SYSTEMS ON LIE GROUPS .....	253
<i>Robert Mahony, Jochen Trumpf</i>	
STATE ESTIMATION FOR A CLASS OF LINEAR SYSTEMS WITH QUADRATIC OUTPUT .....	261
<i>Dionysios Theodosios, Soullaimane Berkane, Dimos V. Dimarogonas</i>	
GENERIC PROPERTIES OF KOOPMAN EIGENFUNCTIONS FOR STABLE FIXED POINTS AND PERIODIC ORBITS .....	267
<i>Matthew D. Kvalheim, David Hong, Shai Revzen</i>	
HIGH ORDER LYAPUNOV-LIKE FUNCTIONS FOR OPTIMAL CONTROL .....	273
<i>Monica Motta, Franco Rampazzo</i>	
ROBUST NONLINEAR OBSERVER DESIGN BASED ON IMPULSIVE DISSIPATIVITY .....	279
<i>A. Schaum, P. Feketa, T. Meurer, J. A. Moreno</i>	
DESIGNING EXPERIMENTS FOR DATA-DRIVEN CONTROL OF NONLINEAR SYSTEMS .....	285
<i>Claudio De Persis, Pietro Tesi</i>	
A DIRECT SYSTEM FOR THE $3X + 1$ DYNAMICS .....	291
<i>John G Leventides</i>	
COMPUTING CONTRACTION METRICS FOR THREE-DIMENSIONAL SYSTEMS .....	297
<i>P. Giesl, S. Hafstein, I. Mehrabinezhad</i>	
ENERGY-BASED DESIGN OF DYNAMIC ALLOCATION IN THE PRESENCE OF SATURATING ACTUATORS.....	304
<i>T. Alves Lima, S. Tarbouriech, F. G. Nogueira, B. C. Torrico</i>	

COMPUTING CONTRACTION METRICS: COMPARISON OF DIFFERENT IMPLEMENTATIONS .....	310
<i>P. Giesl, S. Hafstein, I. Mehrabinezhad</i>	
OVERCOMING THE CURSE OF DIMENSIONALITY FOR APPROXIMATING LYAPUNOV FUNCTIONS WITH DEEP NEURAL NETWORKS UNDER A SMALL-GAIN CONDITION.....	317
<i>Lars Grüne</i>	
QUANTIZED STATE FEEDBACK STABILIZATION OF NONLINEAR SYSTEMS UNDER DENIAL-OF-SERVICE.....	323
<i>Ming Shi, Shuai Feng, Hideaki Ishii</i>	
ON APPROXIMATING POLYNOMIAL-QUADRATIC REGULATOR PROBLEMS .....	329
<i>Jeff Borggaard, Lizette Zietsman</i>	
PARAMETRIZATION OF ALGEBRAIC DIFFERENTIATORS FOR DISTURBANCE ANNIHILATION WITH AN APPLICATION TO THE DIFFERENTIATION OF QUANTIZED SIGNALS .....	335
<i>A. Othmane, H. Mounier, J. Rudolph</i>	
ADAPTIVE H8 CONSENSUS CONTROL FOR DISTRIBUTED PARAMETER SYSTEMS OF PARABOLIC TYPE ON DIRECTED NETWORK GRAPH.....	341
<i>Yoshihiko Miyasato</i>	
LINEARIZED CONTROLLABILITY ANALYSIS OF SEMILINEAR PARTIAL DIFFERENTIAL EQUATIONS .....	347
<i>Bernd Kolar, Markus Schöberl</i>	
BÉZOUT IDENTITY IN PSEUDORATIONAL TRANSFER FUNCTIONS .....	353
<i>Yutaka Yamamoto, Catherine Bonnet</i>	
STRUCTURE-PRESERVING DISCRETIZATION OF PORT-HAMILTONIAN PLATE MODELS .....	359
<i>Andrea Brugnoli, Daniel Alazard, Valérie Pommier-Budinger, Denis Matignon</i>	
PORT-HAMILTONIAN MODELLING OF FLUID DYNAMICS MODELS WITH VARIABLE CROSS-SECTION .....	365
<i>Harshit Bansal, Hans Zwart, Laura Iapichino, Wil Schilders, Nathan Van De Wouw</i>	
A CONVERGENCE RATE FOR THE ADI METHOD FOR INFINITE-DIMENSIONAL LYAPUNOV EQUATIONS .....	373
<i>Mark R. Opmeer</i>	
STRONG STABILIZATION OF SMALL WATER WAVES IN A POOL.....	378
<i>Pei Su, Marius Tucsnak, George Weiss</i>	
ROBUST BOUNDARY OBSERVER FOR TRAFFIC STATE ESTIMATION ON ONE INCOMING AND TWO OUTGOING ROADS.....	384
<i>Huan Yu, Miroslav Krstic</i>	
ON LOCAL EXPONENTIAL STABILITY OF EQUILIBRIUM PROFILES OF NONLINEAR DISTRIBUTED PARAMETER SYSTEMS .....	390
<i>A. Hastir, J. J. Winkin, D. Dochain</i>	
DISTRIBUTED STATE ESTIMATION UNDER HETEROGENEOUS TIME-VARYING COMMUNICATION DELAYS.....	397
<i>Himadri Basu, Se Young Yoon</i>	

SEMI-LINEAR POISSON-MEDIATED FLOCKING IN A CUCKER-SMALE MODEL.....	404
<i>Christos N. Mavridis, Amoolya Tirumalai, John S. Baras, Ion Matei</i>	
A SYSTEMATIC DESIGN OF BACKSTEPPING-BASED STATE FEEDBACK CONTROLLERS FOR ODE-PDE-ODE SYSTEMS .....	410
<i>N. Gehring</i>	
TRAJECTORY TRACKING CONTROL FOR A CLASS OF 2×2 HYPERBOLIC PDE-ODE SYSTEMS.....	416
<i>A. Irscheid, N. Gehring, J. Rudolph</i>	
OUTPUT REGULATION OF SYSTEMS GOVERNED BY DELAY DIFFERENTIAL EQUATIONS: APPROXIMATIONS AND ROBUSTNESS .....	422
<i>John A. Burns, Sai Tej Paruchuri, Michael Schmidt</i>	
TORSIONAL-VIBRATIONS DAMPING IN DRILLING SYSTEMS: MULTIPLICITY- INDUCED-DOMINANCY BASED DESIGN .....	428
<i>Jean Auriol, Islam Boussaada, Hugues Mounier, Silviu-Iulian Niculescu</i>	
PRESCRIBED-TIME STABILIZATION OF ODES WITH DIFFUSIVE ACTUATOR DYNAMICS.....	434
<i>Drew Steeves, Miroslav Krstic</i>	
A NEW INTEGRAL BOUNDARY CONTROL FOR DE SAINT-VENANT PARTIAL DIFFERENTIAL EQUATIONS .....	440
<i>V. Dos Santos Martins, C.-Z. Xu, V. Andrieu</i>	
OPTIMAL SENSOR PLACEMENT FOR OBSERVER DESIGN .....	446
<i>John A. Burns, Terry L. Herdman</i>	
A REDUCED ORDER CONTROLLER FOR OUTPUT TRACKING OF A KELVIN–VOIGT BEAM .....	452
<i>Lassi Paunonen, Duy Phan</i>	
ON-LINE IDENTIFICATION OF THE SINE-GORDON NONLINEAR PDE MODEL .....	458
<i>Yury Orlov, Oscar Gomez</i>	
ROBUST OUTPUT TRACKING FOR A ROOM TEMPERATURE MODEL WITH DISTRIBUTED CONTROL AND OBSERVATION .....	462
<i>Konsta Huhtala, Lassi Paunonen, Weiwei Hu</i>	
ENERGY-BASED IN-DOMAIN CONTROL AND OBSERVER DESIGN FOR INFINITE- DIMENSIONAL PORT-HAMILTONIAN SYSTEMS.....	468
<i>Tobias Malzer, Jesús Toledo, Yann Le Gorrec, Markus Schöberl</i>	
DISCRETE-TIME SISO LTI SYSTEMS WITH MONOTONIC CLOSED-LOOP STEP RESPONSES: ANALYSIS AND CONTROL BASED ON IMPULSE RESPONSE MODELS.....	476
<i>Hamed Taghavian, Mikael Johansson, Mohammad Saleh Tavazoei</i>	
MODELLING OF THE CONVECTION-DIFFUSION EQUATION THROUGH FRACTIONAL RESTRICTED CALCULUS OF VARIATIONS.....	482
<i>Jacky Cresson, Fernando Jiménez, Sina Ober-Blöbaum</i>	
PERIODICITY SCORING OF TIME SERIES ENCODES DYNAMICAL BEHAVIOR OF THE TUMOR SUPPRESSOR P53.....	488
<i>Caroline Moosmüller, Christopher J. Tralie, Mahdi Kooshkbaghi, Zehor Belkhatir, Ioannis G. Kevrekidis</i>	

GLOBAL AND LOCAL SYNAPTIC REGULATION DETERMINES STABILITY OF HOMEOSTATIC PLASTICITY .....	496
<i>Saeed Aljaberi, Adriano Bellotti, Timothy O'Leary, Fulvio Forni</i>	
REGULATING GENE EXPRESSION TO ACHIEVE TEMPORAL PRECISION .....	502
<i>Khem Raj Ghusinga, Abhyudai Singh</i>	
COMPARING CELL POPULATION BALANCE MODEL SIMULATION THROUGH GAUSSIAN PROCESSES AND DISCRETISATION .....	507
<i>Armin Küper, Niccolò Totis, Steffen Waldherr</i>	
CLASSIFYING HISTOGRAMS OF MEDICAL DATA USING INFORMATION GEOMETRY OF BETA DISTRIBUTIONS .....	514
<i>Alice Le Brigant, Nicolas Guigui, Sana Rebbah, Stéphane Puechmorel</i>	
MODELING PROTEIN CONCENTRATIONS IN CYCLING CELLS USING STOCHASTIC HYBRID SYSTEMS.....	521
<i>Zahra Vahdat, Zikai Xu, Abhyudai Singh</i>	
NEEDLE DRIVER CONTROL FOR A ROBOTIC MIS SUTURING SYSTEM .....	527
<i>Kuan Shen, Jia-Yush Yen, Hao-Xiang Kang, Ming-Chih Ho, Yung-Yaw Chen</i>	
GRAPH-THEORETIC OPTIMIZATION FOR EDGE CONSENSUS .....	533
<i>Mathias Hudoba De Badyn, Dillon R. Foight, Daniel Calderone, Mehran Mesbahi, Roy S. Smith</i>	
ELECTRIC POWER PROFILES CONTRACT VIA PROBABILISTIC OPTIMIZATION .....	539
<i>Koji Tsumura</i>	
COMMUNITY DETECTION BY A RIEMANNIAN PROJECTED PROXIMAL GRADIENT METHOD.....	544
<i>Meng Wei, Wen Huang, Kyle A. Gallivan, Paul Van Dooren</i>	
HEURISTICS FOR OPTIMIZATION WITH NONNEGATIVITY CONSTRAINTS USING IDEAS FROM RIEMANNIAN OPTIMIZATION.....	552
<i>Wen Huang</i>	
A DISCRETIZATION ALGORITHM FOR TIME-VARYING COMPOSITE GRADIENT FLOW DYNAMICS.....	558
<i>Kanat Camlibel, Aneel Tanwani</i>	
GLOBALLY OPTIMAL H2-NORM MODEL REDUCTION: A NUMERICAL LINEAR ALGEBRA APPROACH.....	564
<i>Oscar Mauricio Agudelo, Christof Vermeersch, Bart De Moor</i>	
A LIMITED-MEMORY RIEMANNIAN SYMMETRIC RANK-ONE TRUST-REGION METHOD WITH AN EFFICIENT ALGORITHM FOR ITS SUBPROBLEM.....	572
<i>Wen Huang, Kyle A. Gallivan</i>	
ON RIEMANNIAN AND NON-RIEMANNIAN OPTIMISATION, AND OPTIMISATION GEOMETRY.....	578
<i>Jeanne Lefevre, Florent Bouchard, Salem Said, Nicolas Le Bihan, Jonathan H. Manton</i>	
INDUCTIVE GEOMETRIC MATRIX MIDRANGES.....	584
<i>Graham W. Van Goffrier, Cyrus Mostajeran, Rodolphe Sepulchre</i>	



BEHAVIORAL CLONING FOR FATIGUE-ORIENTED WIND TURBINE OPTIMAL PREDICTIVE CONTROL.....	590
<i>David Collet, Mazen Alamir, Domenico Di Domenico, Guillaume Sabiron</i>	
PORT SELECTION FOR OPTIMAL CHARGING/DISCHARGING AND EXTERNAL COMMUNICATION IN SINGLE-INTEGRATOR GRAPHS NETWORKS.....	596
<i>Sudarshan Pulapadi, Sandeep Kumar, Madhu N. Belur, Narayan Rangaraj</i>	
NONLINEAR TRACKING ON THE INFINITE HORIZON: OPTIMAL ROBUST STATE FEEDBACK.....	602
<i>Jacob Hammer</i>	
ELLIPTIC OPTIMAL CONTROL AND SYMMETRIC SUB-RIEMANNIAN SPACES.....	610
<i>Rachida El Assoudi-Baikari, Edouard Zibo</i>	
CONSERVATION OF GENERALIZED MOMENTUM MAPS IN THE OPTIMAL CONTROL OF CONSTRAINED MECHANICAL SYSTEMS .....	615
<i>Peter Betsch, Simeon Schneider</i>	
DEEP LEARNING AS OPTIMAL CONTROL PROBLEMS .....	620
<i>Martin Benning, Elena Celledoni, Matthias J. Ehrhardt, Brynjulf Owren, Carola-Bibiane Schönlieb</i>	
A DISSIPATIVITY CHARACTERIZATION OF VELOCITY TURNPIKES IN OPTIMAL CONTROL PROBLEMS FOR MECHANICAL SYSTEMS .....	624
<i>Timm Faulwasser, Kathrin Flaßkamp, Sina Ober-Blöbaum, Karl Worthmann</i>	
A HYBRID ALGORITHM FOR PRACTICAL NONCONVEX OPTIMIZATION.....	630
<i>Dawn M. Hustig-Schultz, Ricardo G. Sanfelice</i>	
DISTRIBUTED OPTIMIZATION BY NEWTON CONSENSUS OVER UNDIRECTED GRAPHS.....	636
<i>Martin Guay</i>	
A CASE OF OPTIMAL SWITCHING WITH SIGNED SWITCHING COSTS .....	642
<i>Johan Jönsson, Magnus Perninge</i>	
ON STABILITY ANALYSIS OF SLIDING-MODE CONTROLLED SYSTEMS WITH ADDITIVE NOISES .....	647
<i>Yûki Nishimura</i>	
ROBUST STATIC-OUTPUT FEEDBACK CONTROL OF STOCHASTIC LINEAR SWITCHED SYSTEMS WITH DWELL TIME.....	653
<i>Eli Gershon</i>	
A DUAL CHARACTERIZATION OF OBSERVABILITY FOR STOCHASTIC SYSTEMS .....	659
<i>Jin Won Kim, Prashant G. Mehta</i>	
P-SAFETY AND STABILITY .....	665
<i>Manuela L. Bujorianu, Rafael Wisniewski, Evangelos Boulougouris</i>	
BINARY HYPOTHESIS TESTING WITH LEARNING OF EMPIRICAL DISTRIBUTIONS.....	671
<i>Aneesh Raghavan, John S. Baras</i>	
GRANGER CAUSALITY OF GAUSSIAN SIGNALS FROM BINARY OR NON-UNIFORMLY QUANTIZED MEASUREMENTS .....	677
<i>Salman Ahmadi, Girish N. Nair</i>	

INFLUENCING OPINION DYNAMICS IN NETWORKS WITH LIMITED INTERACTION .....	684
<i>Anmol Gupta, Sharayu Moharir, Neeraja Sahasrabudhe</i>	
ARX MODEL IDENTIFICATION USING GENERALIZED SPECTRAL DECOMPOSITION.....	690
<i>Deepak Maurya, Arun K. Tangirala, Shankar Narasimhan</i>	
NETWORK INFERENCE USING SINUSOIDAL PROBING.....	696
<i>Robin Delabays, Melvyn Tyloo</i>	
ON ERROR ANALYSIS OF A CLOSED-LOOP SUBSPACE MODEL IDENTIFICATION METHOD.....	701
<i>Hiroshi Oku, Kenji Ikeda</i>	
DYNAMIC MODE DECOMPOSITION WITH CONTROL LIOUVILLE OPERATORS.....	707
<i>Joel A. Rosenfeld, Rushikesh Kamalapurkar</i>	
RECURSIVE ESTIMATION OF THE SCATTER MATRIX OF ECD: THE RIEMANNIAN INFORMATION GRADIENT METHOD.....	713
<i>Zhou Jialun, Salem Said, Yannick Berthoumieu</i>	
HIDDEN MARKOV CHAINS AND FIELDS WITH OBSERVATIONS IN RIEMANNIAN MANIFOLDS.....	719
<i>Salem Said, Nicolas Le Bihan, Jonathan H. Manton</i>	
ON THE REALIZATION OF HIDDEN MARKOV MODELS AND TENSOR DECOMPOSITION .....	725
<i>Yoshito Ohta</i>	
PREDICTION BASED EVENT TRIGGERED ESTIMATION FOR NETWORKED SYSTEMS.....	731
<i>Senthilkumar K, Avinash Kumar Roy, Srinivasan Kannan</i>	
ERGODICITY CONDITIONS FOR CONTROLLED STOCHASTIC NONLINEAR SYSTEMS UNDER INFORMATION CONSTRAINTS .....	737
<i>N. Garcia, C. Kawan, S. Yüksel</i>	
BLENDING OF LEARNING-BASED TRACKING AND OBJECT DETECTION FOR MONOCULAR CAMERA-BASED TARGET FOLLOWING.....	743
<i>Pranoy Panda, Martin Barczyk</i>	
ASYNCHRONOUS LINKS THAT RE-ORDER SAMPLES: AN L2 GAIN EMBEDDING .....	749
<i>Mark A. Fabbro, Michael Cantoni</i>	
DELAY MARGIN OPTIMIZATION FOR SYSTEMS WITH INTERNAL DELAYED FEEDBACK.....	753
<i>Hitay Özbay</i>	
BACKSTEPPING FOR UNCERTAIN NONLINEAR SYSTEMS WITH A DELAY IN THE CONTROL .....	758
<i>Frédéric Mazenc, Javier E. Pereyra Zamudio, Sabine Mondié</i>	
EFFECTS OF ROOTS OF MAXIMAL MULTIPLICITY ON THE STABILITY OF SOME CLASSES OF DELAY DIFFERENTIAL-ALGEBRAIC SYSTEMS: THE LOSSLESS PROPAGATION CASE.....	764
<i>Guilherme Mazanti, Islam Boussaada, Silviu-Iulian Niculescu, Yacine Chitour</i>	

INSIGHTS FROM A QUALITATIVE ANALYSIS OF A GENE EXPRESSION MODEL WITH DELAYS .....	770
<i>Hakki Ulas Ünal, Marc R. Roussel, Islam Boussaada, Silviu-Iulian Niculescu</i>	
STABILITY ANALYSIS OF NON-LINEAR SAMPLED DATA SYSTEMS WITH TIME VARYING SAMPLE PERIOD AND DELAY IN THE FEEDBACK LOOP .....	776
<i>R. R. P. Van Nooijen, A. G. Kolechkina</i>	
STABILITY ANALYSIS USING NEW VARIANT OF HALANAY'S INEQUALITY .....	783
<i>Frédéric Mazenc, Michael Malisoff, Miroslav Krstic</i>	
DISTRIBUTED CONSENSUS TRACKING OF MULTI-AGENT SYSTEMS WITH TIME-VARYING INPUT/OUTPUT DELAYS AND MISMATCHED DISTURBANCES .....	787
<i>Wei Jiang, Themistoklis Charalambous</i>	

**Author Index**