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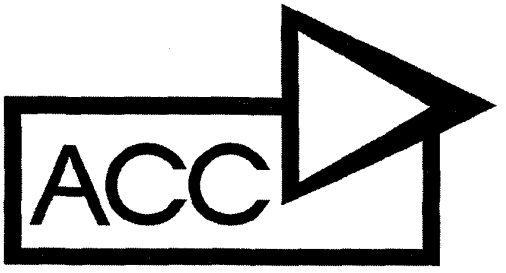

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Qian, Jixin — Zhejiang Univ.

14:50 527
A neural network method for the nonlinear servomechanism problem
Chu, Yun-Chung — Chinese Univ. of Hong Kong
Huang, Jie — Chinese Univ. of Hong Kong

15:10 532
Multivariable internal model adaptive decoupling controller with neural network for nonlinear plants
Ho, Daniel W. C. — City Univ. of Hong Kong
Ma, Z. — Northeastern Univ.

Constitution Ballroom B

WM04
Linear matrix inequalities II
Chair: Yaz, Edwin E. — Univ. of Arkansas
Co-chair: D'Andrea, Raffaello — Cornell Univ.

13:30 537
mu-analysis and synthesis of state feedback systems based on multipliers and LMIs
Chen, Gan — Osaka Prefecture Univ.
Sugie, Toshiharu — Kyoto Univ.

13:50 542
A new LMI approach to performance control of linear parameter-varying systems
Scorletti, Gerard — ENSTA
Fromion, Vincent — Univ. di Roma

14:10 547
Subspace controller design to the mixed H2/H-infinity synthesis with uncommon LMI solutions
Shimomura, Takashi — Osaka Univ.
Fujii, Takao — Osaka Univ.

14:30 550
A LMI solution in the H2 optimal problem for singularly perturbed systems
Garcia, Germain — LAAS-CNRS
Daafouz, Jamal — LAAS-CNRS
Bernussou, Jacques — LAAS-CNRS

14:50 555
Robust control for a benchmark problem via nonlinear matrix inequalities
Collins, Jr., Emmanuel G. — Florida A&M - Florida State
Sadhukhan, Debashis — Florida A&M - Florida State
Watson, Layne T. — Virginia Poly. Inst. & State Univ.

15:10 557
H-infinity control for discrete-time linear systems with Frobenius norm-bounded uncertainties
Boukas, El-Kebir — Ecole Poly. de Montreal
Shi, Peng — Univ. of South Australia

Grand Ballroom E

WM05
Variable structure control II
Chair: Buffington, James M. — U.S. Air Force Research Lab.
Co-chair: Misawa, Eduardo A. — Oklahoma State Univ.

13:30 562
Continuous sliding mode control
Shtessel, Yuri B. — Univ. of Alabama at Huntsville
Buffington, James M. — U.S. Air Force Research Lab.

13:50 564
Sliding mode control for uncertain input-delay systems
Hu, Kejian — Univ. of Florida
Basker, V. R. — Univ. of Florida
Crisalle, Oscar D. — Univ. of Florida

14:10 569
Sliding modes and fast periodic oscillations of singularly perturbed relay control systems
Fridman, L. M. — Samara Architecture & Civil Eng. Acad.

14:30 574
Modular backstepping design of an estimation-based sliding mode controller for uncertain nonlinear plants
Bartolini, Giorgio — Univ. of Cagliari
Ferrara, Antonella — Univ. of Genova
Giacomini, L. — Univ. of Genova

14:50 579
Robust sliding hyperplane design for parametric uncertain systems by Riccati approach
Kim, Kyung-Soo — Korea Adv. Inst. of Science & Tech.
Park, Youngjin — Korea Adv. Inst. of Science & Tech.

15:10 584
Dynamically synthesized variable structure controller with integral modes
Soto, Jose-Miguel V. — Univ. de Concepcion
Sbarbaro, Daniel G. H. — Univ. de Concepcion

Grand Ballroom F

WM06
Direct adaptive control
Chair: Bayard, David S. — California Inst. of Tech.
Co-chair: Annaswamy, A. — Massachusetts Inst. of Tech.

13:30 589
Fitting controllers to data
Cabral, Fabricio B. — Lab Nacional de Comput. Cientifica
Safonov, Michael G. — Univ. of Southern California

13:50 594
Adaptive estimation of nonlinear discrete time systems
Skantze, Fredrik P. — ABB Robotics Products
Loh, Ai-Poh — Massachusetts Inst. of Tech.
Annaswamy, Anuradha M. — Massachusetts Inst. of Tech.

14:10 599
Adaptive control of linear MIMO systems using backstepping approach
Wu, Yu-Qiang — Central Queensland Univ.
Yu, Xinghuo — Central Queensland Univ.

14:30 604
Exponential tracking error convergence bounds for overparametrized adaptive feedforward systems
Bayard, David S. — Jet Propulsion Lab

14:50 609
A design method of universal model reference adaptive controller
Miyasato, Yoshihiko — Inst. of Statistical Mathematics

15:10 614
A tuner that accelerates parameters
Pait, Felipe M. — Univ. de Sao Paulo
Atkinson, Paulo A. — Univ. de Sao Paulo

Grand Ballroom A

WM07

Model reduction and validation

Chair: Beck, Carolyn — Univ. of Pittsburgh
Co-chair: Grigoriadis, Karolos M. — Univ. of Houston

13:30 — 618
Closed-loop model validation: an application to an unstable experimental system
Chen, Li — Univ. of California at Santa Barbara
Smith, Roy S. — Univ. of California at Santa Barbara

13:50 — 623
Performance preserving controller reduction via additive perturbation of closed loop transfer function
Wang, G. — Univ. of Western Australia
Sreeram, Venkatappa — Univ. of Western Australia
Liu, W. Q. — Univ. of Western Australia

14:10 — 629
Model validation for structured uncertainty models
Rangan, Sundeep — Univ. of Michigan
Poolla, Kameshwar — Univ. of California at Berkeley

14:30 — 634
Guaranteed error bounds for model reduction of linear time-varying systems
Lall, Sanjay — California Inst. of Tech.
Beck, Carolyn — Univ. of Pittsburgh
Dullerud, Geir E. — Univ. of Waterloo

14:50 — 639
LQ design for two-time-scale systems by unified approach using delta operators
Shim, Kyu-Hong — Wichita State Univ.
Sawan, M. Edwin — Wichita State Univ.

15:10 — 644
Further results on Hankel singular values and vectors of a class of infinite dimensional systems
Ohta, Yoshito — Osaka Univ.

Grand Ballroom B

WM08

Optimal control II

Chair: Sznaier, Mario — Pennsylvania State Univ.
Co-chair: Chen, Degang — Iowa State Univ.

13:30 — 649
Mixed L1/H2 controllers for continuous time systems
Amishima, Takeshi — Pennsylvania State Univ.
Bu, Juanyu — Pennsylvania State Univ.
Sznaier, Mario — Pennsylvania State Univ.

13:50 — 655
Optimal ripple-free deadbeat controllers for systems with time delays
Elaydi, Hatem — New Mexico State Univ.
Paz, Robert A. — New Mexico State Univ.

14:10 — 660
Multi-objective MIMO optimal control design without zero interpolation
Salapaka, Murti V. — Iowa State Univ.
Khammash, Mustafa H. — Iowa State Univ.

14:30 — 665
Optimal H2 synthesis of controllers with relative degree two
Corrado, Joseph R. — Georgia Inst. of Tech.
Haddad, Wassim M. — Georgia Inst. of Tech.
Bernstein, Dennis S. — Univ. of Michigan

14:50 — 667
Optimal closed loop control for nonlinear systems using Chebyshev polynomials
Jaddu, Hussein — Japan Adv. Inst. of Sci. & Tech.
Shimemura, Etsujiro — Japan Adv. Inst. of Sci. & Tech.

15:10 — 672
Loss of quality in optimal control
Nwokah, Osita D. I. — Southern Methodist Univ.
Happawana, Gemunu S. — Southern Methodist Univ.
Afolabi, Dare — Purdue Univ. at Indianapolis

Volume 2

Delaware 1

WM09

Systems and control issues for autonomous aerial vehicles

Chair: McClamroch, N. Harris — Univ. of Michigan
Co-chair: Kaminer, Isaac — Naval Post-Graduate School
Organizer: McClamroch, N. Harris — Univ. of Michigan
Co-organizer: Kaminer, Isaac — Naval Post-Graduate School

13:30 (I) — 679
Fault tolerant control design for parameter dependent systems
Vos, David W. — Aurora Flight Sciences
Motazed, Ben — Aurora Flight Sciences

13:50 (I) — 681
Aerodynamics and flight control design for hovering micro air vehicles
Motazed, Ben — Aurora Flight Sciences
Vos, David W. — Aurora Flight Sciences
Drela, Mark — Massachusetts Inst. of Tech.

14:10 (I) — 684
Solar-powered formation-enhanced aerial vehicle systems for sustained endurance
Chichka, David F. — Univ. of California at Los Angeles
Speyer, Jason L. — Univ. of California at Los Angeles

14:30 (I) — 689
SOLUS: an autonomous aircraft for flight control and trajectory planning research
Atkins, Ella M. — Univ. of Michigan
Miller, Robert H. — Univ. of Michigan
Van Pelt, T. H. — Univ. of Michigan
Shaw, Keith — Univ. of Michigan
Ribbens, William B. — Univ. of Michigan
Washabaugh, Peter D. — Univ. of Michigan
Bernstein, Dennis S. — Univ. of Michigan

14:50 (I) 694
Combined CDGPS and vision-based control of a small autonomous helicopter
Rock, Stephen M. — Stanford Univ.
Frew, Eric W. — Stanford Univ.
Jones, Hank — Stanford Univ.
LeMaster, Edward — Stanford Univ.
Woodley, Bruce R. — Stanford Univ.

15:10 (I) 699
Development of the rapid flight test prototyping system for unmanned air vehicles
Hallberg, Eric — Naval Post-Graduate School
Kaminer, Isaac — Naval Post-Graduate School
Pascoal, Antonio M. — Inst. Superior Tecnico

Delaware 2

WM10
Hybrid systems
Chair: Engell, Sebastian — Univ. of Dortmund
Co-chair: Lemmon, Michael — Univ. of Notre Dame

13:30 704
From modelling control systems using Grafcet to analyzing systems using hybrid automata
Frensel, G. — Delft Univ. of Tech.
Bruijn, P. M. — Delft Univ. of Tech.

13:50 706
Complementarity problems in linear complementarity systems
Heemels, Maurice — Eindhoven Univ. of Tech.
Schumacher, J. M. — CWI
Weiland, Siep — Eindhoven Univ. of Tech.

14:10 711
Identification of hybrid systems
Hoffmann, Ingo — Univ. of Dortmund
Engell, Sebastian — Univ. of Dortmund

14:30 713
Exponential stability of a certain class of hybrid systems and digital feedback stabilizers
Mancilla-Aguilar, J. L. — Univ. of Buenos Aires
Garcia, R. A. — Univ. of Buenos Aires
Troparevsky, M. I. — Univ. of Buenos Aires

14:50 718
A scheduling method for network-based control systems
Kim, Yong Ho — Daewoo Electronics Co.
Park, Hong-Seong — Kangwon National Univ.
Kwon, Wook Hyun — Seoul National Univ.

15:10 723
An integrated control of strip casting process by decentralization and optimal supervision
Hong, Keum-Shik — Pusan National Univ.
Kim, Sung-Hoon — Pusan National Univ.
Lee, Kyo-Il — Seoul National Univ.

Delaware 3

WM11
Stochastic jump systems
Chair: Gajic, Zoran R. — Rutgers Univ.
Co-chair: Spall, James C. — Johns Hopkins Univ.

13:30 728
Control for Markovian jumping discrete-time systems with different forms of uncertainties
Shi, Peng — Univ. of South Australia
Boukas, El-Kebir — Ecole Poly. de Montreal

13:50 733
Guaranteed cost control of discrete-time Markovian jumping uncertain systems
Boukas, El-Kebir — Ecole Poly. de Montreal
Shi, Peng — Univ. of South Australia

14:10 738
White water and brake recirculation policies in paper mills via Markovian jump linear quadratic control
Khanbaghi, M. — Ecole Poly. de Montreal
Malhame, Roland P. — Ecole Poly. de Montreal
Perrier, Michel — Ecole Poly. de Montreal

14:30 744
Monotonicity of algebraic Lyapunov iterations for optimal control of jump parameter linear systems
Gajic, Zoran R. — Rutgers Univ.
Losada, Ricardo — Rutgers Univ.

14:50 746
Robust H2-control for discrete-time Markovian jump linear systems
Costa, Oswaldo Luis V. — Univ. of Sao Paulo
Marques, Ricardo P. — Univ. of Sao Paolo

15:10 751
On a class of quadratic tests for detection of abrupt changes in signals and systems
Nikiforov, Igor V. — Univ. de Tech. de Troyes

Delaware 4

WM12
Nonlinear robust control
Chair: Chang, Bor-Chin — Drexel Univ.
Co-chair: Soroush, Masoud — Drexel Univ.

13:30 756
Universal regulators for minimum phase nonlinear systems
Khalil, Hassan K. — Michigan State Univ.

13:50 761
Robust tracking of a nonlinear system with parameter uncertainties
Kwon, Sung-Il — Univ. of Pittsburgh
Cain, James T. — Univ. of Pittsburgh
Regan, Amy — Los Alamos National Lab.

14:10 766
Robust stabilization of MIMO uncertain nonlinear systems without strict feedback conditions
Liu, Xiaoping — Louisiana State Univ.
Zhou, Kemin — Louisiana State Univ.
Gu, Guoxiang — Louisiana State Univ.

14:30 771
A new robust nonlinear feedback design for a class of uncertain systems
Ben Ghalia, Mounir — Duke Univ.

14:50 776
Robust stabilization of a class of MIMO nonlinear systems: sliding mode control & passification approach
Lee, J. S. — Seoul National Univ.
Shim, H. — Seoul National Univ.
Byun, Jijoon — Seoul National Univ.
Seo, Jin H. — Seoul National Univ.

15:10 781
Semi-global state feedback H-infinity control of nonlinear systems: an approach via linear systems with self-scheduling parameters
Azuma, Takehito — Waseda Univ.
Watanabe, Ryo — Osaka Univ.
Uchida, Kenko — Waseda Univ.

Jefferson

WM13
Model predictive control of chemical processes
Chair: Zheng, Alex — Univ. of Massachusetts
Co-chair: Zhao, Hong — Aspen Technology, Inc.

13:30 786
Robust stability analysis of constrained model predictive control
Zheng, Alex — Univ. of Massachusetts

13:50 791
Receding horizon implementation of optimal servo problem: application to a nonlinear process with input multiplicities
Seki, Hiroya — Mitsubishi Chemical Corp.
Morari, Manfred — ETH Swiss Fed. Inst. of Tech.

14:10 796
An identification approach to nonlinear state space model for industrial multivariable model predictive control
Zhao, Hong — Aspen Technology, Inc.
Guiver, John — Aspen Technology, Inc.
Sentoni, Guillermo B. — Aspen Technology, Inc.

14:30 801
Nonlinear dynamic matrix control using local models
Townsend, Shane — Queen's Univ. of Belfast
Lightbody, Gordon — Queen's Univ. of Belfast
Brown, Michael — Queen's Univ. of Belfast
Irwin, George W. — Queen's Univ. of Belfast

14:50 806
Analysis and performance of the LP-MPC and QP-MPC cascade control system
Ying, Chao-Ming — Washington Univ.
Voorakaranam, Srikanth — Washington Univ.
Joseph, Babu — Washington Univ.

15:10 811
Optimization of feeding profile for baker's yeast production by dynamic programming
Berber, Ridvan — Univ. of Ankara
Pertev, Cenk — Santa Farma Pharmaceutical Co.
Turker, Mustafa — Pak Food Ind., Inc.

Franklin 1

WM14
Control of electro-hydraulic systems
Chair: Chiu, George T.-C. — Purdue Univ.
Co-chair: Yao, Bin — Purdue Univ.
Organizer: Chiu, George T.-C. — Purdue Univ.
Co-organizer: Yao, Bin — Purdue Univ.

13:30 (I) 813
A perspective on systems and controls engineering in the earth moving and construction industry
Duffy, John D. — Caterpillar Inc.

13:50 (I) 818
High performance swing velocity tracking control of hydraulic excavators
Yao, Bin — Purdue Univ.
Zhang, Jiao — Caterpillar Inc.
Koehler, Douglas — Caterpillar Inc.
Litherland, John — Caterpillar Inc.

14:10 (I) 823
Identification and control of electrohydraulic actuator modeled as a linear periodic system
Kim, Dean H. — Bradley Univ.
Tsao, Tsu-Chin — Univ. of Illinois at Urbana-Champaign

14:30 (I) 828
Robust controller design for a variable displacement hydraulic motor
Plahuta, Michael J. — Purdue Univ.
Franchek, Matthew A. — Purdue Univ.
Stern, Hansjoerg — Purdue Univ.

14:50 (I) 833
A systematic approach to the control of electrohydraulic servosystems
Alleyne, Andrew G. — Univ. of Illinois at Urbana-Champaign

15:10 (I) *
Discussion
Chiu, George T.-C. — Purdue Univ.

Franklin 2

WM15
Control applications II
Chair: Dahleh, Mohammed A. — Univ. of California at Santa Barbara
Co-chair: Sourlas, Dennis D. — Univ. of Missouri-Rolla

13:30 838
Control of fluid mixing using entropy methods
D'Alessandro, Domenico — Univ. of California at Santa Barbara
Dahleh, Mohammed A. — Univ. of California at Santa Barbara
Mezic, I. — Univ. of California at Santa Barbara

13:50 844
Decentralized, modular real-time control for machining applications
Yook, John — Univ. of Michigan
Tilbury, Dawn M. — Univ. of Michigan
Chervela, Kalyani — Univ. of Michigan
Soparkar, Nandit — Univ. of Michigan

14:10 850
Dynamic model based robust tracking control of a differentially steered wheeled mobile robot
Zhang, Yulin — Univ. of California at Davis
Hong, Daehie — Univ. of California at Davis
Chung, Jae H. — Univ. of California at Davis
Velinsky, Steven A. — Univ. of California at Davis

14:30 856
Imbalance identification and compensation for an airborne telescope
Wilson, Edward — NASA Ames Research Center
Mah, Robert — NASA Ames Research Center
Guerrero, Michael C. — NASA Ames Research Center
Galvagni, Alessandro E. — NASA Ames Research Center
Wallace, Mark — NASA Ames Research Center
Winters, Jose — NASA Ames Research Center

14:50 861
Robust control of an active tilting actuator for high-density optical disk
Kang, Ji-Yoon — Samsung Adv. Inst. of Tech.
Yoon, Myung-Gon — Samsung Adv. Inst. of Tech.

15:10 866
Integrating directional constraints in intelligent, hybrid, pde-ode motion controllers
Masoud, Ahmad A. — Royal Military College of Canada
Masoud, Samer A. — Jordan Univ. of Science & Tech.

Adams Ballroom A

WM16
Control experiments: what do we learn from them?
Chair: Neat, Gregory W. — Jet Propulsion Lab
Co-chair: Bernstein, Dennis S. — Univ. of Michigan
Organizer: Neat, Gregory W. — Jet Propulsion Lab
Co-organizer: Bernstein, Dennis S. — Univ. of Michigan

13:30 (I) 868
Lessons learned in nonlinear systems and flexible robots through experiments on a 6 legged platform
O'Brien, John F. — Rensselaer Polytechnic Inst.
McInroy, John E. — Univ. of Wyoming
Bodtke, Dan — Univ. of Wyoming
Bruch, Mike — Univ. of Wyoming
Hamann, Jerry C. — Univ. of Wyoming

13:50 (I) 873
Control testbeds and flight demonstrations: transitioning theory to application
Miller, David W. — Massachusetts Inst. of Tech.
Mallory, Gregory J. W. — Massachusetts Inst. of Tech.

14:10 (I) 879
Control technology lessons learned: case study using the micro-precision interferometer testbed
Neat, Gregory W. — Jet Propulsion Lab
Abramovici, Alex — Jet Propulsion Lab

14:30 (I) *
Commentary on Control Experiments
Neat, Gregory W. — Jet Propulsion Lab

14:50 (I) *
Commentary on Control Experiments
Bernstein, Dennis S. — Univ. of Michigan

15:10 (I) *
Panel Discussion

Adams Ballroom B

WM17
Tutorial: Fault protection design for the attitude control subsystem of the Cassini spacecraft
Chair: Lee, Allan Y. — Jet Propulsion Lab
Organizer: Lee, Allan Y. — Jet Propulsion Lab

13:30 (I) 884
An overview of the fault protection design for the attitude control subsystem of the Cassini spacecraft
Brown, G. Mark — Jet Propulsion Lab
Johnson, Sue A. — Jet Propulsion Lab

14:30 (I) 899
A state-space fault monitor architecture and its application to the Cassini spacecraft
Macala, Glenn A. — Jet Propulsion Lab

14:45 (I) 902
A model-based thruster leakage monitor for the Cassini spacecraft
Lee, Allan Y. — Jet Propulsion Lab
Brown, M. Jay — Jet Propulsion Lab

15:00 (I) 905
Fault-tolerant guidance algorithms for Cassini's Saturn orbit insertion burn
Gray, D. L. — Jet Propulsion Lab
Brown, G. Mark — Jet Propulsion Lab

15:15 (I) 909
Introduction to complex fault protection software testing
Johnson, Sue A. — Jet Propulsion Lab

Gettysburg 1-2

WP01
Robust robot control
Chair: Chen, Ye-Hwa — Georgia Inst. of Tech.
Co-chair: Kelkar, Atul G. — Kansas State Univ.

16:00 912
Robust control for rigid serial manipulators: a general setting
Chen, Ye-Hwa — Georgia Inst. of Tech.
Leitmann, George — Univ. of California
Chen, Jyh-Shin — General Motors Corp.

16:20 917
Control of uncertain nonholonomic mechanical systems using differential flatness
Barany, E. — New Mexico State Univ.
Glass, Kristin — New Mexico State Univ.
Colbaugh, Richard — New Mexico State Univ.

16:40 922
Decentralized robust control of robot manipulators
Tang, Yu — National Univ. of Mexico
Guerrero, Gerardo — National Univ. of Mexico

17:00 927
On the boundedness of kinetic energy of a two degree of freedom manipulator
Bonilla, Moises E. — CINVESTAV-IPN
Aguilar, Carlos I. — CINVESTAV-IPN

17:20 929
A simple linear stablizing controller for RLED robot manipulators with uncertain models
Ailon, Amit — Kwangju Inst. of Sci. & Tech.
Gil, M. I. — Ben Gurion Univ. of Negev
Choi, Eun S. — Kwangju Inst. of Sci. & Tech.
Ahn, Byung H. — Kwangju Inst. of Sci. & Tech.

17:40 934
Robust control of redundant manipulators with constraints using a general reduced order model
Stepanenko, Yury — Univ. of Victoria
Su, Chun-Yi — Univ. of Victoria

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WP02
Automotive applications
Chair: Pilutti, Thomas — Ford Research Lab.
Co-chair: Ulsoy, A. Galip — Univ. of Michigan

16:00 939
A lateral position sensing system for automated vehicle following
Alleyne, Andrew — Univ. of Illinois at Urbana-Champaign
Williams, B. — Univ. of Illinois at Urbana-Champaign
DePoorter, Mark — Univ. of Illinois at Urbana-Champaign

16:20 944
Moving cluster classification technique with Lidar traffic monitoring application
Cheok, Ka Chai — Oakland Univ.
Nishizawa, Shinichi — Oakland Univ.
Young, William J. — Oakland Univ.

16:40 950
Stability of an automated vehicle platoon
Wang, Yibing — Tsinghua Univ.
Han, Zengjin — Tsinghua Univ.

17:00 955
Adaptive lift control of an electrohydraulic camless valvetrain system
Anderson, Mark D. — Univ. of Illinois at Urbana-Champaign
Tsao, Tsu-Chin — Univ. of Illinois at Urbana-Champaign
Levin, Michael B. — Ford Motor Co.

17:20 957
NARMAX modeling and robust controller design of internal combustion engines
Glass, John W. — Purdue Univ.
Franchek, Matthew A. — Purdue Univ.

17:40 962
GMDH method applied to nonlinear identification of a turbocharged diesel engine
Gamo, S. Ouenou — Univ. de Picardie-Jules Verne
Rachid, Ahmed — Univ. de Picardie-Jules Verne
Ouladsine, Mustapha — Univ. de Picardie-Jules Verne

Constitution Ballroom A

WP03
Advances in neural net control
Chair: Innocenti, Mario — Univ. of Pisa
Co-chair: Balakrishnan, S. N. — Univ. of Missouri-Rolla

16:00 964
A class of modified Hopfield networks for control of linear and nonlinear systems
Shen, Jie — Univ. of Missouri-Rolla
Balakrishnan, S. N. — Univ. of Missouri-Rolla

16:20 970
Neural network-based control design: an LMI approach
Limanond, Suttipan — Arizona State Univ.
Si, Jennie — Arizona State Univ.

16:40 975
Inverting recurrent neural networks for internal model control of nonlinear systems
Kambhampati, C. — Univ. of Reading
Craddock, Rachel — Univ. of Reading
Tham, M. — Univ. of Reading
Warwick, Kevin — Univ. of Reading

17:00 980
The properties of latitudinal neural networks with potential power system applications
Chen, Dingguo — Oregon State Univ.
Mohler, Ronald R. — Oregon State Univ.

17:20 985
A recurrent neural network for global asymptotic tracking control of disturbed nonlinear systems
Jiang, Dan-Chi — Chinese Univ. of Hong Kong
Wang, Jun — Chinese Univ. of Hong Kong

17:40 990
Design of position controller of linear pulse motor using neural networks
Moon, Chun Sub — Yeungnam Univ.
Park, Jung Il — Yeungnam Univ.
Lee, Ki Dong — Yeungnam Univ.
Lee, Suk Gyu — Yeungnam Univ.
Lee, Jae Hyung — Samick Industrial Co.

Constitution Ballroom B

WP04
Parametric LFT uncertainty modeling
Chair: Belcastro, Christine — NASA Langley Research Ctr.
Co-chair: Balas, Gary J. — Univ. of Minnesota
Organizer: Belcastro, Christine — NASA Langley Research Ctr.
Co-organizer: Balas, Gary J. — Univ. of Minnesota

16:00 (I) 992
Parametric uncertainty modeling: an overview
Belcastro, Christine M. — NASA Langley Research Ctr.

16:20 (I) 997
Global nonlinear parametric modeling with application to F-16 aerodynamics
Morelli, Eugene A. — NASA Langley Research Ctr.

16:40 (I) 1002
LFT formulation for multivariate polynomial problems
Belcastro, Christine M. — NASA Langley Research Ctr.
Chang, Bor-Chin — Drexel Univ.

17:00 (I) 1008
Linear fractional representations of systems with rational uncertainty
Cockburn, Juan C. — FAMU-FSU

17:20 (I) 1013
Computational study and comparisons of LFT reducibility methods
Beck, Carolyn — Univ. of Pittsburgh
D'Andrea, Raffaello — Cornell Univ.

17:40 (I) 1018
Computation of LFT uncertainty bounds with repeated parametric uncertainties
Lim, Kyong B. — NASA Langley Research Ctr.
Giesy, D. P. — NASA Langley Research Ctr.

Grand Ballroom E

WP05
Applications of variable structure systems
Chair: Drakunov, Sergey V. — Tulane Univ.
Co-chair: Paden, Brad — Magnetic Moments, Ltd.

16:00 1023
Towards an integrated welding testbed: temperature field control
Silver, David — Tulane Univ.
Salmon, Rene — Tulane Univ.
Barbieri, Enrique — Tulane Univ.
Drakunov, Sergey V. — Tulane Univ.

16:20 1028
Saturation protection for feedback linearizable systems using sliding mode theory
Buffington, James M. — WL/FIGC
Shtessel, Yuri B. — Univ. of Alabama at Huntsville

16:40 1033
Adaptive variable structure torque ripple cancellation for permanent magnet stepper motors
Melkote, Hemant — Polytechnic Univ.
Khorrami, Farshad — Polytechnic Univ.

17:00 1038
IVSC-based speed estimation for an ac induction motor
Chern, Tzuen-Lih — National Sun Yat-Sen Univ.
Chang, Jerome — National Sun Yat-Sen Univ.

17:20 1043
A direct approach to adaptive controller design and its application to inverted pendulum tracking
Ge, S. S. — National Univ. of Singapore
Hang, Chang Chieh — National Univ. of Singapore
Zhang, T. — National Univ. of Singapore

17:40 *
Withdrawn

Grand Ballroom F

WP06
Indirect adaptive control

Chair: Krstic, Miroslav — Univ. of California at San Diego
Co-chair: Polycarpou, Marios M. — Univ. of Cincinnati

16:00 1048
Stability margins of nonlinear optimal regulators with nonquadratic performance criteria involving cross-weighting terms
Chellaboina, Vijaya S. — Georgia Inst. of Tech.
Haddad, Wassim M. — Georgia Inst. of Tech.

16:20 1053
Feedback attenuation and adaptive cancellation of blade vortex interaction noise on a helicopter blade element
Ariyur, Kartik B. — Univ. of California at San Diego
Krstic, Miroslav — Univ. of California at San Diego

16:40 1058
Adaptive step rate control of a stair stepper exercise machine
Shields, Joel — Univ. of California at Berkeley
Horowitz, Roberto — Univ. of California at Berkeley

17:00 1063
Experimental results on discrete-time nonlinear adaptive tracking control of a single-link flexible manipulator
Rokui, M. Reza — Concordia Univ.
Khorasani, Khashayar — Concordia Univ.

17:20 1068
Design of improved adaptive controllers using partial certainty equivalence principle
Filatov, Nikolai — Ruhr-Univ. of Bochum
Unbehauen, Heinz — Ruhr-Univ. of Bochum

17:40 1073
Self-tuning LQG control subject to input constraints: robustness aspects
Krolikowski, A. — Tech. Univ. of Poznan
Kubiak, Tomasz — Tech. Univ. of Poznan

Grand Ballroom A

WP07
Nonlinear and geometric modeling

Chair: Chen, Degang — Iowa State Univ.
Co-chair: Liu, Sheng — Massachusetts Inst. of Tech.

16:00 1075
Modeling of differential-algebraic thermofluid systems using singularly perturbed dynamics
Gordon, Brandon W. — Massachusetts Inst. of Tech.
Liu, Sheng — Massachusetts Inst. of Tech.

16:20 1080
State space and transfer function modeling of evanescent waves in two-dimensional acoustics
Sane, Harshad S. — Univ. of Michigan
Bernstein, Dennis S. — Univ. of Michigan
Grosh, Karl — Univ. of Michigan

16:40 1085
A GSMP model-framework for continuous-time dynamic systems
Zhuang, Zhifeng — Univ. of Duisburg
Frank, Paul M. — Univ. of Duisburg

17:00 1090
A simulation study of fish behavior affected by obstacles
Nakamine, H. — Kyoto Univ. of Education
Sannomiya, Nobuo — Kyoto Inst. of Tech.

17:20 1092
An integrating approach for modeling nonlinear dynamic systems with embedded logic
Jordan, Mario A. — Univ. Nac. del Sur
Sentoni, Guillermo B. — Carnegie Mellon Univ.

17:40 1094
Nonlinear modeling of a moored floating platform in stochastic environment
Jordan, Mario A. — Univ. Nac. del Sur
Duga, Gabriel E. — Univ. Nac. del Sur

Grand Ballroom B

WP08
LQR/LQG

Chair: Friedland, Bernard — New Jersey Inst. of Tech.
Co-chair: Beard, Randal W. — Brigham Young Univ.

16:00 1099
Optimal and robust control of a group of single-input linear systems using linear uncertain technique
Shue, Shyh-Pyng — Wichita State Univ.
Agarwal, Ramesh K. — Wichita State Univ.
Shi, Peng — Univ. of South Australia
Sawan, M. Edwin — Wichita State Univ.

16:20 1104
The NLQGP problem: application to a multistage manufacturing system
Westman, John J. — Univ. of Illinois at Chicago
Hanson, Floyd B. — Univ. of Illinois at Chicago

16:40 1109
Robust non-fragile LQ controllers: the static state feedback case
Famularo, D. — Univ. della Calabria
Abdallah, Chaouki T. — Univ. of New Mexico
Jadbabaie, Ali — Univ. of New Mexico
Dorato, Peter — Univ. of New Mexico
Haddad, Wassim M. — Georgia Inst. of Tech.

17:00 1114
Extended LQR model with noise amplification
Zes, Dean — Orbital Sciences

17:20 1116
An H-infinity-optimal alternative to the FxLMS algorithm
Sayyarrodsari, Bijan — Stanford Univ.
How, Jonathan P. — Stanford Univ.
Hassibi, Babak — Stanford Univ.
Carrier, Alain C. — Lockheed Martin

17:40 3889
Stability and performance measures of stochastic system with uncertainties
Liu, Jun — Nanyang Tech. Univ.
Fadali, Mohammed Sami — Univ. of Nevada

Delaware 1

WP09
Flight control
Chair: Meyer, George — NASA Ames Research Center
Co-chair: Devasia, Santosh — Univ. of Utah

16:00 1122
Recovery guidance for linear systems with input and state constraints
Devasia, Santosh — Univ. of Utah
Meyer, George — NASA Ames Research Center

16:20 1128
A decomposition approach to output tracking for multivariable nonlinear non-minimum phase systems
Al-Hiddabi, Saif A. — Univ. of Michigan
McClamroch, N. Harris — Univ. of Michigan

16:40 1133
Robust flight control of a VSTOL aircraft using polynomial matching
White, Brian A. — Cranfield Univ.

17:00 1138
Modeling, simulation, animation, and real-time (MoSART) control of helicopter systems
Lim, Chen-I — Arizona State Univ.
Rodriguez, Armando A. — Arizona State Univ.

17:20 1143
Sliding mode control of the X33 vehicle in launch mode
Shtessel, Yuri B. — Univ. of Alabama at Huntsville
Jackson, Mark — NASA Marshall Space Flight Center
Hall, Charles — NASA Marshall Space Flight Center
Krupp, Don — NASA Marshall Space Flight Center
Hendrix, N. Douglas — NASA Marshall Space Flight Center

17:40 1145
Comparison of dynamic inversion and LPV tailless flight control law designs
Buffington, James M. — WL/FIGC
Sparks, Andrew G. — Wright Lab.

Delaware 2

WP10
Pole placement control
Chair: Vagners, Juris — Univ. of Washington
Co-chair: Asada, Haruhiko — Massachusetts Inst. of Tech.

16:00 1150
Pole placement using constant output feedback
Kabuli, M. Guntekin — Univ. of California at Davis
Gundes, A. Nazli — Univ. of California at Davis
At, N. — Univ. of California at Davis
Koca, M. — Univ. of California at Davis

16:20 1152
Asymmetric order doubling: a pole placement method for nonminimum phase systems
Ravuri, Muralidhar — Massachusetts Inst. of Tech.
Asada, Haruhiko — Massachusetts Inst. of Tech.

16:40 1159
Dominant pole placement with maximum zero/pole ratio phase-lead controllers
Coelho, Carlos Alberto — Escola Fed. de Eng. de Itajuba

17:00 1165
A look at the pole/zero structure of a Stewart platform using special coordinate basis
Thayer, D. — Univ. of Washington
Vagners, Juris — Univ. of Washington

17:20 1170
Pole assignment with optimal performance
Hu, Ting-Shu — Univ. of Waterloo
Lam, James — Univ. of Hong Kong

17:40 1175
A new dynamic output feedback compensator design for pole assignment
Tsui, Chia-Chi

Delaware 3

WP11
Stochastic systems
Chair: Skelton, Robert E. — Univ. of California at San Diego
Co-chair: Wu, Shao-Po — Stanford Univ.

16:00 1177
Inequality-based reliability estimates for complex systems
Hill, Stacy D. — Johns Hopkins Univ.
Spall, James C. — Johns Hopkins Univ.

16:20 1180
Observability conditions for biased linear time invariant systems
Bembenek, Charlene L. — Lockheed Martin M & S
Chmielewski, Jr., Thomas A. — Sensar
Kalata, Paul — Drexel Univ.

16:40 1185
Maximum entropy stochastic realization and robust filtering via convex optimization
Wu, Shao-Po — Stanford Univ.

17:00 1191
Reduced order Kalman filter design for interconnected singularly perturbed systems
Qaddour, Jihad — Mesa State College

17:20 1193
Impulse control of observations in nonlinear Kalman filtering
Basin, Michael V. — Auto. Univ. of Nuevo Leon
Pinsky, Mark A. — Univ. of Nevada at Reno

17:40 3879
Integrated instrumentation and control design using finite signal-to-noise models
Lu, Jianbo — General Motors
Skelton, Robert E. — Univ. of California at San Diego

Delaware 4

WP12
Gain scheduling
Chair: Shamma, Jeff S. — Univ. of Texas at Austin
Co-chair: Lin, Zongli — Univ. of Virginia

16:00 1195
Nonlinear gain-scheduled control design using set-valued methods
Tu, Kuang-Hsuan — Univ. of Texas at Austin
Shamma, Jeff S. — Univ. of Texas at Austin

16:20 1200
Control of LPV systems using a quasi-piecewise affine parameter-dependent Lyapunov function
Lim, Sungyung — Stanford Univ.
How, Jonathan P. — Stanford Univ.

16:40 1205
Gain-scheduled control for substructure properties
Fedigan, Stephen J. — Univ. of Virginia
Knospe, Carl R. — Univ. of Virginia
Williams, Ronald D. — Univ. of Virginia

17:00 1210
Sufficient conditions for self-scheduled bounded amplitude control
Bett, Christopher — Univ. of Notre Dame
Lemmon, Michael — Univ. of Notre Dame

17:20 1215
Interpolation of observer state feedback controllers for gain scheduling
Stilwell, Daniel J. — Johns Hopkins Univ.
Rugh, Wilson J. — Johns Hopkins Univ.

17:40 1220
Gain scheduling of a SISO autonomous nonlinear system using chaos theory
Amin, Mayank B. — Univ. of Minnesota

Jefferson

WP13
Plant-friendly control-relevant identification for the process industries
Chair: Rivera, Daniel E. — Arizona State Univ.
Co-chair: Dash, Sachindra — Honeywell Tech. Ctr.
Organizer: Bequette, B. Wayne — Rensselaer Polytechnic Inst.

16:00 (I) 1225
Integrated robust identification and control of large scale processes
Featherstone, Andrew P. — Univ. of Illinois at Urbana-Champaign
Braatz, Richard D. — Univ. of Illinois at Urbana-Champaign

16:20 (I) 1230
Integrated MIMO identification and robust PID controller design through loop shaping
Adusumilli, Srinivas — Arizona State Univ.
Rivera, Daniel E. — Arizona State Univ.
Dash, Sachindra — Honeywell Tech. Ctr.
Tsakalis, Kostas S. — Arizona State Univ.

16:40 (I) 1235
Practically-motivated input sequences for nonlinear model identification
Pearson, Ronald K. — Institut fur Automatik ETH, Zurich
Menold, Patrick H. — Institut fur Automatik ETH, Zurich
Allgower, Frank — Institut fur Automatik ETH, Zurich

17:00 (I) 1240
Control-relevant experiment design: a plant-friendly, LMI-based approach
Cooley, Brian L. — Auburn Univ.
Lee, Jay H. — Auburn Univ.
Boyd, Stephen P. — Stanford Univ.

17:20 (I) •
Withdrawn

17:40 (I) 1245
Process identification using polynomial models
Ying, Chao-Ming — Washington Univ.
Joseph, Babu — Washington Univ.

Franklin 1

WP14
Manufacturing and production systems
Chair: Judd, Robert P. — Ohio Univ.
Co-chair: Horowitz, Roberto — Univ. of California at Berkeley

16:00 *
JIT production planning approach with fuzzy delivery for mass manufacturing sytems
Wang, Wei — Northeastern Univ.
Wang, Dingwei — Northeastern Univ.

16:20 •
JIP production planning with fuzzy delivery for OKP manufacturing systems
Wang, Wei — Northeastern Univ.
Wang, Dingwei — Northeastern Univ.

16:40 1250
Single-item production-inventory control with shortages and back-orders
Aliyu, M. D. S. — King Fahd Univ. of Petroleum & Minerals
Al-Ajmi, K. H. — King Fahd Univ. of Petroleum & Minerals

17:00 1252
A stack-based algorithm for deadlock avoidance in flexible manufacturing systems
Lipset, Robert — Ohio Univ.
Deering, Paul E. — Ohio Univ.
Judd, Robert P. — Ohio Univ.

17:20 1257
Deadlock avoidance in petri nets with uncontrollable transitions
Moody, John O. — Notre Dame Univ.
Antsaklis, Panos J. — Notre Dame Univ.

17:40 1259
Interobject spacing control and controllability of a manufacturing transportation system
Krucinski, Martin — Univ. of California at Berkeley
Cloet, Carlo — Univ. of California at Berkeley
Horowitz, Roberto — Univ. of California at Berkeley
Tomizuka, Masayoshi — Univ. of California at Berkeley
Li, Perry — Univ. of Minnesota

Franklin 2

WP15
Control applications III
Chair: Auslander, David M. — Univ. of California at Berkeley
Co-chair: Daoutidis, Prodromos — Univ. of Minnesota

16:00 1266
Qmotor 2.0: a pc based real-time multitasking graphical control environment
Costescu, Nicolae — Clemson Univ.
Dawson, Darren M. — Clemson Univ.

16:20 1271
Modelling and experimental investigation of carangiform locomotion for control
Kelly, Scott D. — California Inst. of Tech.
Mason, Richard J. — California Inst. of Tech.
Anhalt, Carl T. — California Inst. of Tech.
Murray, Richard M. — California Inst. of Tech.
Burdick, Joel W. — California Inst. of Tech.

16:40 1277
Nonlinear controller design for a crane system with state constraints
Yoshida, Kazunobu — Shimane Univ.

17:00 1284
Mixed objectives MIMO control design for a compact disc player
Dettori, M. — Delft Univ. of Tech.
Prodanovic, V. — Delft Univ. of Tech.
Scherer, Carsten C. W. — Delft Univ. of Tech.

17:20 1289
Nonlinear optimal flow control for sewer networks
Marinaki, Magdalene — Tech. Univ. of Crete
Papageorgiou, Markos — Tech. Univ. of Crete

17:40 1294
Control of a container crane: fast traversing and residual sway control from the perspective of controlling an underactuated system
Hong, Keum-Shik — Pusan National Univ.
Kim, Jae-Hoon — Samsung Heavy Industries Co.
Lee, Kyo-Il — Seoul National Univ.

Adams Ballroom A

WP16
Controls education on the web
Chair: Tilbury, Dawn M. — Univ. of Michigan
Co-chair: Heck, Bonnie S. — Georgia Inst. of Tech.
Organizer: Heck, Bonnie S. — Georgia Inst. of Tech.
Co-organizer: Tilbury, Dawn M. — Univ. of Michigan

16:00 (I) 1299
Using the web in your courses: the how-to's and the why's
Poindexter, Sandra E. — Northern Michigan Univ.
Heck, Bonnie S. — Georgia Inst. of Tech.

16:20 (I) 1304
Controls education on the WWW: tutorials for MATLAB and SIMULINK
Tilbury, Dawn M. — Univ. of Michigan
Luntz, Jonathan — Carnegie Mellon Univ.
Messner, William C. — Carnegie Mellon Univ.

16:40 (I) 1309
A practical servomotor project: combining the web with simulation tools to solidify concepts in undergraduate control education
Zywno, M. S. — Ryerson Polytechnic Univ.
Kennedy, Diane C. — Ryerson Polytechnic Univ.

17:00 (I) 1314
The virtual control lab VCLAB for education on the web
Schmid, Christian — Ruhr-Univ. of Bochum

17:20 (I) 1319
Access to an instructional control laboratory experiment through the world wide web
Bhandari, Atul — Netscape Communications Corp.
Shor, Molly H. — Oregon State Univ.

17:40 (I) 1326
Remote laboratory experimentation
Shaheen, Mohammed — Rosemount Analytical Inc.
Loparo, Kenneth — Case Western Reserve Univ.
Buchner, Marcus R. — Case Western Reserve Univ.

Adams Ballroom B

WP17
Tutorial: Sensorless control of variable switched reluctance motors
Chair: Holling, George — Advanced Motion Controls, Inc.
Organizer: Holling, George — Advanced Motion Controls, Inc.

16:00 (I) 1330
The sensorless control of variable switched reluctance motors
Holling, George — Advanced Motion Controls, Inc.

17:00 (I) 1339
Sensorless control of a very efficient, hermetically sealed variable switched reluctance motor
Schmitt, M. — Advanced Motion Controls, Inc.
Yeck, M. — Advanced Motion Controls, Inc.

17:15 (I) 1342
A sensorless VSR drive for industrial variable speed applications
Chikada, Kenzo — Nippon Electric Ind. Co., Ltd.

17:30 (I) *
Applications for sensorless VSR traction drives
Glubrecht, D. — John Deere

17:45 (I) *
Feasibility of submersible VSR pump motors using sensorless position feedback
Jones, D. — Incremotion Associates

Volume 3

Grand Ballroom C&D

Plenary Session II
Chair: Simaan, Marwan — Univ. of Pittsburgh
Co-chair: Chow, Joe H. — Rensselaer Polytechnic Inst.

8:30 - 9:30
Gain Scheduling
Jeff S. Shamma — University of Texas, Austin

Gettysburg 1-2

TA01
Distributed parameter systems
Chair: Adomaitis, Raymond A. — Univ. of Maryland
Co-chair: Christofides, P. — Univ. of California at Los Angeles

10:00 1345
Robust output feedback control of quasi-linear parabolic PDE systems
Christofides, Panagiotis D. — Univ. of California at Los Angeles
Baker, James — Univ. of California at Los Angeles

10:20 1350
A linear matrix inequality approach to decentralized control of distributed parameter systems
D'Andrea, Raffaello — Cornell Univ.

10:40 1355
Nonlinear control of Navier-Stokes equations
Christofides, Panagiotis D. — Univ. of California at Los Angeles
Armaou, Antonios — Univ. of California at Los Angeles

11:00 1360
Thermal distribution control in scanned processing of materials
Fourligkas, Nikolaos V. Tufts Univ.
Doumanidis, Charalabos Tufts Univ.

11:20 1365
Model reduction for a tungsten chemical vapor deposition system
Chang, Hsiao-Yung Univ. of Maryland
Adomaitis, Raymond A. Univ. of Maryland

11:40 1367
A performance limitation of tracking controller for SIMO distributed parameter systems
Yoon, Myung-Gon Samsung Adv. Inst. of Tech.
Kang, Ji-Yoon Samsung Adv. Inst. of Tech.

Gettysburg 3-4

TA02
Engine and powertrain control

Chair: Cook, Jeffrey A. Ford Research Labs
Co-chair: Peng, Huei Univ. of Michigan
Organizer: Stefanopoulou, A. Univ. of California at Santa Barbara
Co-organizer: Peng, Huei Univ. of Michigan

10:00 (I) 1372
Issues in cold start emission control for automotive IC engines
Sun, Jing Ford Motor Co.
Sivashankar, N. Ford Motor Co.

10:20 (I) 1377
Comparative analysis of closed loop AFR control during cold start
Leisenring, William Ford Motor Co.
Yurkovich, Stephen Ohio State Univ.

10:40 (I) 1383
Control of variable geometry turbocharged diesel engines for reduced emissions
Stefanopoulou, A. G. Univ. of California at Santa Barbara
Kolmanovsky, Ilya V. Ford Motor Co.
Freudenberg, James S. Univ. of Michigan

11:00 (I) 1389
Robust nonlinear controller for turbocharged diesel engines
Jankovic, Mrdjan Ford Research Labs
Jankovic, Miroslava Ford Research Labs
Kolmanovsky, Ilya V. Ford Research Labs

11:20 (I) 1395
Coordination of engine and transmission using hybrid control methodologies
Beydoun, Ali Ford Motor Co.
Wang, Le Yi Wayne State Univ.

11:40 (I) 1400
Damping of idle engine speed oscillations using a reversible alternator
Gokcek, Cevat Univ. of Michigan
Kabamba, Pierre T. Univ. of Michigan

Constitution Ballroom A

TA03
Neural networks and fuzzy logic

Chair: Sasiadek, Jurek Carleton Univ.
Co-chair: Innocenti, Mario Univ. of Pisa

10:00 *
Nonlinear control of hypersonic flight with neural networks
Grohs, J. R. Univ. of Missouri
Balakrishnan, S. N. Univ. of Missouri

10:20 1405
Application of reinforcement learning to dexterous robot control
Bucak, Ihsan Omur Oakland Univ.
Zohdy, Mohamed A. Oakland Univ.

10:40 1410
Neural-network-inverse-model control strategy: discrete-time analysis for relative order one system
Hussain, Mohamed A. Univ. of Malaya

11:00 1415
Eliminating the DC component in steady state tracking error for unknown nonlinear systems: a combination of fuzzy logic and a PI outer loop
Wang, Hong UMIST
Wu, Jinhui UMIST

11:20 1417
Controlling the transition from stable resting to tracking control of an unstable system
Yang, Pai-Hsueh Univ. of California at Berkeley
Auslander, David M. Univ. of California at Berkeley

11:40 1422
Fuzzy adaptive control based on RBFN
Chen, Xiaohong Tongji Univ.
Wu, Qidi Tongji Univ.
Qian, Jixin Zhejiang Univ.

Constitution Ballroom B

TA04
Robustness analysis I

Chair: Barmish, B. Ross Univ. of Wisconsin at Madison
Co-chair: Knospe, Carl R. Univ. of Virginia

10:00 1427
Probabilistic robustness: an RLC circuit realization of the truncation phenomenon
Zhang, J. Univ. of Wisconsin at Madison
Lagoa, C. M. Univ. of Wisconsin at Madison
Barmish, B. Ross Univ. of Wisconsin at Madison

10:20 1429
Constrained optimal synthesis and robustness analysis by randomized algorithms
Chen, Xinjia Louisiana State Univ.
Zhou, Kemin Louisiana State Univ.

10:40 1434
Robust hypothesis testing for structured uncertainty models
Rangan, Sundeep Univ. of Michigan
Poolla, Kameshwar Univ. of California at Berkeley

11:00 1439
On the computation of the robust stability margin for ellipsoidal parametric uncertainties
Mahon, H. Michael Univ. of Florida
Crisalle, Oscar D. Univ. of Florida

11:20 1444
On the strengthened robust SPR problem for discrete-time systems
Mosquera, Carlos Univ. de Vigo
Perez-Gonzalez, Fernando Univ. de Vigo

11:40 1446
Robust stability evaluation of sampled-data control systems with time-invariant nonlinearity in a gain-phase plane
Okuyama, Yoshifumi Tottori Univ.
Takemori, Fumiaki Tottori Univ.

Grand Ballroom E

TA05

Control with actuator saturation

Chair: Stoorvogel, Anton A. — Eindhoven Univ. of Tech.
Co-chair: Lemmon, Michael — Univ. of Notre Dame

10:00 — 1453
A practical anti-windup algorithm for model-based digital controllers
Ogunye, Ayowale B. — Air Products & Chemicals, Inc.

10:20 — 1458
An anti-windup design for the asymptotic tracking of linear system subjected to actuator saturation
Niu, Weiguang — Univ. of California at Berkeley
Tomizuka, Masayoshi — Univ. of California at Berkeley

10:40 — 1463
On simultaneous global external and global internal stabilization of critically unstable linear systems with saturating actuators
Saberi, Ali — Washington State Univ.
Hou, Ping — Washington State Univ.
Stoorvogel, Anton A. — Eindhoven Univ. of Tech.

11:00 — 1468
Actuator amplitude saturation control for systems with exogenous disturbances
Kapila, Vikram — Polytechnic Univ.
Haddad, Wassim M. — Georgia Inst. of Tech.

11:20 — 1473
Control synthesis versus saturation compensation for systems with rate and amplitude constraints
Hui, K. — Univ. of Hong Kong
Chan, C. W. — Univ. of Hong Kong

11:40 — 1478
Open-loop and feedback bounded control in linear systems
Mikhailov, S. A. — Univ. of Wuppertal

Grand Ballroom F

TA06

Applications of adaptive control

Chair: Zhang, Youping — United Technologies Research Ctr.
Co-chair: Kosmatopoulos, E. — Univ. of Southern California

10:00 — 1480
Direct adaptive control for tonal disturbance rejection
Zhang, Youping — United Technologies Research Ctr.
Mehta, Prashant G. — United Technologies Research Ctr.
Bitmead, Robert R. — Australian National Univ.
Johnson, C. Richard, Jr. — Cornell Univ.

10:20 *
Adaptive control of multivariable nonlinear systems with application to a large segmented reflector
Kosmatopoulos, Elias B. — Univ. of Southern California
Boussalis, H. — California State Univ.
Mirirani, Majdedin — California State Univ.
Ioannou, Petros A. — Univ. of Southern California

10:40 — 1483
Friction compensation using adaptive nonlinear control with persistent excitation
Misovec, Kathleen M. — Massachusetts Inst. of Tech.
Annaswamy, Anuradha M. — Massachusetts Inst. of Tech.

11:00 — 1488
Adaptive control techniques for friction compensation
Feemster, M. — Clemson Univ.
Vedagarbha, Praveen — Clemson Univ.
Dawson, Darren M. — Clemson Univ.
Haste, D. — Clemson Univ.

11:20 — 1493
A frequency response based adaptive control for center-driven web winders
Liu, Zhijun — Rockwell Automation

11:40 — 1498
A globally-stable adaptive field-oriented controller for current-fed induction motors
Ahmed-Ali, Tarek — CNRS
Lamnabhi-Lagarrigue, Francoise — Ecole Superieure D'Electricite
Ortega, Romeo S. — SUPELEC

Grand Ballroom A

TA07

Recent advances in singularly perturbed control systems

Chair: Gajic, Zoran R. — Rutgers Univ.
Co-chair: Lim, Myo-Taeg — Korea Univ.
Organizer: Gajic, Zoran R. — Rutgers Univ.
Organizer: Lim, Myo-Taeg — Korea Univ.
Organizer: Kecman, V. — Univ. of Auckland
Organizer: Shen, X. — Univ. of Waterloo

10:00 (I) — 1503
Exact slow-fast decomposition of the Hamilton-Jacobi equation of singularly perturbed systems
Fridman, E. M. — Tel-Aviv Univ.

10:20 (I) — 1508
Sliding surface design for singularly perturbed systems
Su, Wu-Chung — National Chung-Hsing Univ.

10:40 (I) — 1513
Recursive approach to Nash games of quasi singularly perturbed linear systems
Skataric, D. — Univ. of Belgrade
Petrovic, B. — Univ. of Belgrade

11:00 (I) — 1518
Eigenvector approach for optimal control of singularly perturbed and weakly coupled linear systems
Kecman, Vojislav — Univ. of Auckland
Bingulac, Stanoje — Kuwait Univ.

11:20 (I) — 1523
Transformations for decomposition of linear singularly perturbed systems with N-fast subsystems
Lim, Myo-Taeg — Korea Univ.

11:40 (I) — 1526
Recent advances in singularly perturbed control systems – high accuracy techniques
Gajic, Zoran R. — Rutgers Univ.
Shen, X. — Univ. of Waterloo

Grand Ballroom B

TA08

Disturbance rejection

Chair: Jabbari, Faryar — Univ. of California at Irvine
Co-chair: Lin, Zongli — Univ. of Virginia

10:00 1531
On optimal robust disturbance minimization
Djouadi, M. S. — Wayne State Univ.
Zames, George — McGill Univ.

10:20 1536
Solutions to general H-infinity almost disturbance decoupling problem with measurement feedback and internal stability
Chen, Ben M. — National Univ. of Singapore
Lin, Zongli — Univ. of Virginia
Hang, Chang Chieh — National Univ. of Singapore

10:40 1541
Explicit solvability conditions for a class of disturbance decoupling problems with static measurement feedback
Chen, Ben M. — National Univ. of Singapore

11:00 1543
Disturbance attenuation for LPV systems with bounded inputs
Nguyen, T. — Univ. of California at Irvine
Jabbari, Faryar — Univ. of California at Irvine

11:20 1548
Assessment of achievable PI control performance for linear processes with dead time
Ko, Byung-Su — Univ. of Texas at Austin
Edgar, Thomas F. — Univ. of Texas at Austin

11:40 1553
A new disturbance rejection scheme for hard disk drive control
Guo, Lin — Maxtor Corp.

Delaware 1

TA09
Interferometry modeling and control

Chair: Joshi, Sanjay S. — Jet Propulsion Lab
Co-chair: Laskin, Robert A. — Jet Propulsion Lab
Organizer: Joshi, Sanjay S. — Jet Propulsion Lab
Co-organizer: Laskin, Robert A. — Jet Propulsion Lab

10:00 (I) 1558
On multidisciplinary modeling of the space interferometry mission
Grogan, Robert L. — Jet Propulsion Lab
Laskin, Robert A. — Jet Propulsion Lab

10:20 (I) 1563
Overview of the micro-precision interferometer testbed
Neat, Gregory W. — Jet Propulsion Lab
Abramovici, Alex — Jet Propulsion Lab
Goullioud, Renaud — Jet Propulsion Lab
Korechoff, Robert P. — Jet Propulsion Lab
Calvet, Robert J. — Jet Propulsion Lab
Joshi, Sanjay S. — Jet Propulsion Lab

10:40 (I) 1569
Disturbance analysis of integrated structural-optical models with uncertainties
Gutierrez, Homero L. — Massachusetts Inst. of Tech.
Miller, David W. — Massachusetts Inst. of Tech.

11:00 (I) 1574
Formation sensing and control technologies for a separated spacecraft interferometer
Robertson, Andrew — Stanford Univ.
Corazzini, Tobe — Stanford Univ.
How, Jonathan P. — Stanford Univ.

11:20 (I) 1580
Fuel equalized retargeting for separated spacecraft interferometry
Beard, Randal W. — Brigham Young Univ.
McLain, Timothy W. — Brigham Young Univ.
Hadaegh, Fred Y. — Jet Propulsion Lab

11:40 (I) 1585
Advanced fringe tracking algorithms for low-light level ground-based Stellar interferometry
Padilla, Carlos E. — Moldyn, Inc.
Karlov, Valeri I. — Moldyn, Inc.
Matson, Leslie — Moldyn, Inc.
Chun, Hon M. — Moldyn, Inc.

Delaware 2

TA10
Fault detection for nonlinear systems

Chair: Fadali, Mohammed S. — Univ. of Nevada at Reno
Co-chair: Balle, Peter — Tech. Univ. of Darmstadt
Organizer: Fadali, Mohammed S. — Univ. of Nevada at Reno
Co-organizer: Pinsky, Mark A. — Univ. of Nevada at Reno

10:00 (I) 1590
Actuator fault detection and isolation in nonlinear systems using LMIs and LMEs
Yaz, Edwin E. — Univ. of Arkansas
Azemi, Asad — Penn State Univ. - Del. Cty.

10:20 (I) 1595
Innovation generation for bilinear systems: application to robust fault detection
Kinnaert, Michel — Univ. Libre de Bruxelles

10:40 (I) 1600
Nonlinear rule-based detection and identification of control system failures
Schram, G. — Delft Univ. of Tech.
Gopisetty, S. M. — Princeton Univ.
Stengel, Robert F. — Princeton Univ.

11:00 (I) 1605
Fault detection and isolation for nonlinear processes based on local linear fuzzy models and parameter estimation
Balle, Peter — Tech. Univ. of Darmstadt
Isermann, Rolf — Tech. Univ. of Darmstadt

11:20 (I) *
Fault detection and accomodation in nonlinear process transients
Gorinevsky, Dimitry M. — Honeywell-Measurex Devron Inc.

11:40 (I) 1610
Modeling and real-time diagnostics in TEAMS-RT
Mathur, Amit — Qualtech Systems, Inc.
Deb, Somnath — Qualtech Systems, Inc.
Pattipati, Krishna R. — Qualtech Systems, Inc.

Delaware 3

TA11
Integrated plant and controller design

Chair: Grigoriadis, Karolos M. — Univ. of Houston
Co-chair: Skelton, Robert E. — Univ. of California at San Diego
Organizer: Grigoriadis, Karolos M. — Univ. of Houston
Co-organizer: Skelton, Robert E. — Univ. of California at San Diego

10:00 (I) 1615
Issues in modeling for control
Gevers, Michel — Univ. Catholique de Louvain
Anderson, Brian D. O. — Australian National Univ.
Codrons, Benoit — Univ. Catholique de Louvain

10:20 (I) 1620
Model identification and control from a probabilistic viewpoint
Hamby, Eric S. — Univ. of Michigan
Kabamba, Pierre T. — Univ. of Michigan
Khargonekar, Pramod P. — Univ. of Michigan

10:40 (I) 1625
Integrated structural and control design for vector second-order systems via LMIs
Grigoriadis, Karolos M. — Univ. of Houston
Skelton, Robert E. — Univ. of California at San Diego

11:00 (I) 1630
Sensitivity analysis for simultaneous optimization of controlled structures
Obinata, Goro — Akita Univ.
Zou, Liyong — Akita Univ.

11:20 (I) 1635
Horizontal control effector sizing for high speed civil transport
Hallberg, Eric — Naval Post-Graduate School
Kaminer, Isaac — Naval Post-Graduate School

11:40 (I) 1640
Plant-controller optimization with applications to integrated surface sizing and feedback controller design for autonomous underwater vehicles
Silvestre, Carlos — Inst. Superior Tecnico
Pascoal, Antonio M. — Inst. Superior Tecnico
Kaminer, Isaac — Naval Post-Graduate School
Healey, Anthony — Naval Post-Graduate School

Delaware 4

TA12
Nonlinear control I
Chair: Wright, Raymond A. — Dow Chemical Co.
Co-chair: Hauser, John E. — Univ. of Colorado at Boulder

10:00 1645
Approaches to global stabilization of a nonlinear system not affine in control
Fontaine, Dan — Univ. of California at Santa Barbara
Kokotovic, Petar V. — Univ. of California at Santa Barbara

10:20 1648
Stability margins in inverse optimal input-to-state stabilization
Krstic, Miroslav — Univ. of California at San Diego

10:40 1653
Stabilization under measurement noise: Lyapunov characterization
Ledyaev, Yuri S. — Western Michigan Univ.
Sontag, Eduardo D. — Rutgers Univ.

11:00 1658
State-dependent Riccati equation solution of the toy nonlinear optimal control problem
Hull, Richard A. — Coleman Research Corp.
Cloutier, James R. — WL-MNAG
Mracek, Curtis P. — WL-MNAG
Stansbery, Donald T. — QuesTech, Inc.

11:20 1663
Semi-global robust nonlinear control: state-dependent scaling and computational aspects
Ito, Hiroshi — Kyushu Inst. of Tech.

11:40 1669
Nonlinear system stabilization via equilibria-dependent Lyapunov functions: beyond gain scheduling control
Leonessa, Alexander — Georgia Inst. of Tech.
Haddad, Wassim M. — Georgia Inst. of Tech.
Chellaboina, Vijaya-Sekhar — Georgia Inst. of Tech.

Jefferson

TA13
Nonlinear model predictive control
Chair: Allgower, Frank — Institut fur Automatik ETH, Zurich
Co-chair: Lee, Jay H. — Auburn Univ.
Organizer: Bequette, B. Wayne — Rensselaer Polytechnic Inst.

10:00 (I) 1674
Nonlinear stability-constrained model predictive control with input and state constraints
Cheng, Xu — Westinghouse Electric Corp.
Krogh, Bruce H. — Carnegie Mellon Univ.

10:20 (I) 1679
Stability analysis for linear/nonlinear model predictive control of constrained processes
Valluri, Sairam — Drexel Univ.
Kapila, Vikram — Polytechnic Univ.

10:40 (I) 1684
On feedback linearization in LMI-based nonlinear MPC
van den Boom, Ton J. J. — Delft Univ. of Tech.

11:00 (I) 1689
Bilinear matrix inequalities and robust stability of nonlinear multi-model MPC
Slupphaug, Olav — Norwegian Univ. of Science & Tech.
Foss, Bjarne A. — Norwegian Univ. of Science & Tech.

11:20 (I) 1695
Model predictive control for on-line optimization of semi-batch reactors
Helbig, A. — RWTH Aachen
Abel, O. — RWTH Aachen
Marquardt, Wolfgang — RWTH Aachen

11:40 (I) 1700
Nonlinear model predictive control of the Tennessee Eastman process
Zheng, Alex — Univ. of Massachusetts

Franklin 1

TA14
Active control of wind-turbines
Chair: Song, David Y. D. — North Carolina A&T State Univ.
Co-chair: Balas, Mark J. — Univ. of Colorado at Boulder
Organizer: Song, David Y. D. — North Carolina A&T State Univ.
Co-organizer: Robinson, M. C. — National Renewable Energy Lab.

10:00 (I) 1705
Hybrid power systems with diesel and wind turbine generation
Bialasiewicz, Jan T. — National Renewable Energy Lab.
Muljadi, E. — National Renewable Energy Lab.
Drouilhet, S. — National Renewable Energy Lab.
Nix, G. — National Renewable Energy Lab.

10:20 (I) *
Application of proportional-integral and disturbance accommodating control to variable speed variable pitch horizontal axis wind turbines
Kendall, Lewis — Univ. of Colorado at Boulder
Balas, Mark J. — Univ. of Colorado at Boulder
Lee, Yung Jae — Univ. of Colorado at Boulder
Fingersh, Lee Jay — Univ. of Colorado at Boulder

10:40 (I) 1710
Control strategy for variable-speed stall-regulated wind turbines
Muljadi, E. National Renewable Energy Lab.
Pierce, K. National Renewable Energy Lab.
Migliore, P. National Renewable Energy Lab.

11:00 (I) *
Wind turbine control system modeling capabilities
Pierce, Kirk National Renewable Energy Lab.
Fingersh, Lee Jay Univ. of Colorado at Boulder

11:20 (I) 1715
Control of wind turbines using memory-based method
Song, Y. D. North Carolina A&T State Univ.

11:40 (I) 1720
Dynamics and control of structural loads of wind turbines
Ekelund, Thommy Chalmers Univ. of Tech.

Franklin 2

TA15
Control applications IV
Chair: Khorrami, Farshad Polytechnic Univ.
Co-chair: Petersen, Ian R. Australian Defense Force Academy

10:00 1725
Robust filtering in an intercept system
Cong, Shan Wright State Univ.
Hong, Lang Wright State Univ.

10:20 *
Withdrawn

10:40 1727
Stabilizability of an antagonistic biomimetic actuator system
Kolacinski, Richard M. Case Western Reserve Univ.
Lin, Wei Case Western Reserve Univ.
Chizeck, Howard Case Western Reserve Univ.

11:00 1732
Stability analysis of a missile control system with a dynamic inversion controller
Schumacher, Corey Wright Lab.
Khargonekar, Pramod P. Univ. of Michigan

11:20 1737
Guaranteed cost control of stochastic uncertain systems applied to a problem of missile autopilot design
Petersen, Ian R. Australian Defense Force Academy

11:40 1742
Model based leakage detection in a pulverized coal injection vessel
Johansson, Andreas Lulea Univ. of Tech.
Medvedev, Alexander V. Lulea Univ. of Tech.

Adams Ballroom A

TA16
Control of gas metal arc welding processes
Chair: Moore, Kevin L. Idaho State Univ.
Organizer: Moore, Kevin L. Idaho State Univ.

10:00 (I) 1747
Modelling, calibration, and control-theoretic analysis of the GMAW process
Moore, Kevin L. Idaho State Univ.
Yender, R. Idaho State Univ.
Tyler, J. Idaho State Univ.
Naidu, D. Subbaram Idaho State Univ.

10:20 (I) *
In process optimization of gas metal arc welding parameters
Smartt, H. B Lockheed Martin Idaho Tech. Co.
Johnson, J. A. Lockheed Martin Idaho Tech. Co.

10:40 (I) 1752
Interval model based control of gas metal arc welding
Zhang, Y. M. Univ. of Kentucky
Liguo, E. Univ. of Kentucky
Walcott, Bruce L. Univ. of Kentucky

11:00 (I) 1757
Feedback linearization control of current and arc length in GMAW systems
Abdelrahman, Mohamed A. Tennessee Tech. Univ.

11:20 (I) 1762
Application of MIMO direct adaptive control to gas metal arc welding
Ozcelik, Selahattin Texas A&M Univ. at Kingsville
Moore, Kevin L. Idaho State Univ.
Naidu, D. Subbaram Idaho State Univ.

11:40 (I) 1767
An animated MATLAB/SIMULINK tool for gas metal arc welding control experimentation
Ozcelik, Selahattin Texas A&M Univ. at Kingsville

Adams Ballroom B

TA17
Tutorial: Control applications and challenges in the air traffic management industry
Chair: Tierno, Jorge E. Honeywell Tech. Center
Co-chair: Stein, Gunter Honeywell Tech. Center
Organizer: Tierno, Jorge E. Honeywell Tech. Center

10:00 (I) 1772
Control applications and challenges in air traffic management
Jackson, Joseph W. Honeywell Inc.
Green, Steven M. NASA Ames Research Center

11:00 (I) 1789
Analysis of pilot intent parameters in air traffic management
Zhao, Yiyuan Univ. of Minnesota
Haissig, Christine Honeywell Tech. Center
Hoffman, Mary Jo Honeywell Tech. Center

11:15 (I) 1793
Aerodynamic envelope protection using hybrid control
Tomlin, Claire J. Univ. of California at Berkeley
Lygeros, John Univ. of California at Berkeley
Sastry, Shankar S. Univ. of California at Berkeley

11:30 (I) 1797
Robust optimization methodologies for the free route concept
El Ghaoui, Laurent M. ENSTA
Seigneuret, Franck ENSTA

11:45 (I) 1800
Modeling of an airline operations control center as a queueing network
Pujet, Nicolas Massachusetts Inst. of Tech.
Feron, Eric Massachusetts Inst. of Tech.
Rakhit, Ananda United Airlines

Gettysburg 1-2

TM01
Flexible robot control
Chair: Siciliano, Bruno Univ. degli Studi di Napoli Federico II
Co-chair: Kozlowski, Krzysztof R. Poznan Tech. Univ.

13:30
Neural network based tracking control of flexible joint manipulators
Efrati, T — Univ. of Southern California
Flashner, Henryk — Univ. of Southern California

13:50 1804
An optimal switched compensation controller for flexible-link manipulators
Ozen, Figen

14:10 1809
Closed loop stability analysis of a flexible robot arm using feedback control
Zhang, Rongjun — Purdue Univ. at Indianapolis
Chen, Yaobin — Purdue Univ. at Indianapolis
Sun, Zengqi — Tsinghua Univ.
Sun, Fuchun — Tsinghua Univ.

14:30 1814
Optimal position controller of a two-link flexible-joint robot manipulator
Lahdhiri, Tarek — Univ. of Windsor
ElMaraghy, Hoda A. — Univ. of Windsor

14:50 1819
Comparison of linear and nonlinear H-infinity control for a flexible-link manipulator
Yazdanpanah, M. J. — Concordia Univ.
Khorasani, Khashayar — Concordia Univ.
Patel, Rajnikant V. — Concordia Univ.

15:10 1821
A modal feedback control law for vibration control of multi-link flexible robots
Yang, H. — National Univ. of Singapore
Krishnan, Hariharan — National Univ. of Singapore
Ang, Jr., M. H. — National Univ. of Singapore

Gettysburg 3-4

TM02
Automated highway systems
Chair: Ray, Laura — Dartmouth College
Co-chair: Peng, Huei — Univ. of Michigan
Organizer: Stefanopoulou, A. — Univ. of California at Santa Barbara
Co-organizer: Peng, Huei — Univ. of Michigan

13:30 (I) 1823
Demonstration of an automated highway platoon system
Tan, Han-Shue — Univ. of California at Berkeley
Rajamani, Rajesh — Univ. of California at Berkeley
Zhang, Wei-Bin — Univ. of California at Berkeley

13:50 (I) 1828
Optimal desired traffic flow patterns for automated highway systems
Alvarez, Luis — Univ. of California at Berkeley
Horowitz, Roberto — Univ. of California at Berkeley
Chao, Susan Y. — Univ. of California at Berkeley
Gomes, Gabriel — Univ. of California at Berkeley

14:10 (I) 1833
Coordination of local adaptive traffic signal controllers
Porche, I. — Univ. of Michigan
Lafortune, Stephane — Univ. of Michigan

14:30 (I) 1838
Decision making for road departure warning systems
Pilutti, Thomas — Ford Research Lab.
Ulsoy, A. Galip — Univ. of Michigan

14:50 (I) 1843
Experimental determination of tire forces and road friction
Ray, Laura — Dartmouth College

15:10 (I) 1848
Constrained navigation algorithms for strapdown inertial navigation systems with reduced set of sensors
Brandt, A. — Allied Signal Defense & Space Systems
Gardner, J. F. — Pennsylvania State Univ.

Constitution Ballroom A

TM03
Design of fuzzy controllers
Chair: Wang, Li-Xin — Hong Kong Univ. of Science & Tech.
Co-chair: Repperger, D. — Wright Patterson Air Force Base

13:30 1853
Automatic design of fuzzy controllers
Wang, Li-Xin — Hong Kong Univ. of Science & Tech.

13:50 1855
Fuzzy controller design using space-filling curves
Elshafei-Ahmed, M. — King Fahd Univ. of Petro. & Minerals
Ahmed, M. S. — King Fahd Univ. of Petro. & Minerals

14:10 1860
Self-learning fuzzy PID controller based on neural networks
Li, Qiqiang — Zhejiang Univ.
Cheng, Zhengqun — Zhejiang Univ.
Qian, Jixin — Zhejiang Univ.

14:30 1862
A study on learning scheme of self-learning rule-based fuzzy controller using random variable sequence
Jeong, Seung-Hyun — Yeungnam Univ.
Han, Chang-Wook — Yeungnam Univ.
Park, Jung-Il — Yeungnam Univ.
Kwon, Soon-Hak — Yeungnam Univ.

14:50 1864
Designing fuzzy models for nonlinear discrete-time systems with guaranteed performance
Wang, Li-Xin — Hong Kong Univ. of Science & Tech.

15:10 1866
A fuzzy approach to greenhouse climate control
Caponetto, R. — SGS-Thomson Microelectronics
Fortuna, L. — Univ. degli Studi di Catania
Nunnari, G. — Univ. degli Studi di Catania
Occhipinti, L. — SGS-Thomson Microelectronics

Constitution Ballroom B

TM04
Robustness analysis II
Chair: Nwokah, Osita D. I. — Southern Methodist Univ.
Co-chair: Bose, N. K. — Pennsylvania State Univ.

13:30 1958
Plotting robust root loci for linear systems with multilinearly parametric uncertainties
Hwang, Chyi — National Chung Cheng Univ.
Chen, Jyh-Jia — National Cheng Kung Univ.

13:50 1871
Robustness of pole-retention inside specified regions for interval descriptor systems
Fang, Chun-Hsiung — National Kaohsiung Inst. of Tech.
Lu, Chun-Lin — National Kaohsiung Inst. of Tech.
Kau, Shih-Wei — National Kaohsiung Inst. of Tech.
Hong, Lin — National Kaohsiung Inst. of Tech.

14:10 1874
Robust root-clustering analysis in a union of subregions
Bachelier, Olivier LAAS-CNRS
Pradin, B. LAAS-CNRS

14:30 1879
Test for nonnegativity of polynomials with literal coefficients by quantifier elimination
Bose, N. K. Pennsylvania State Univ.
Charoenlarpnopparut, C. Pennsylvania State Univ.

14:50 1881
Model matching approach to discrete time polynomial optimization problems
Pellegrinetti, Gordon Univ. of Illinois at Urbana-Champaign
Bentsman, Joseph Univ. of Illinois at Urbana-Champaign

15:10 1883
On Sturm's theorem for interval polynomials
Okuyama, Yoshifumi Tottori Univ.
Takemori, Fumiaki Tottori Univ.
Chen, Hong Tottori Univ.

Grand Ballroom E

TM05
Nonlinear system analysis
Chair: Khalil, Hassan K. Michigan State Univ.
Co-chair: Zohdy, Mohamed A. Oakland Univ.

13:30 1886
Semi-global L2 gain analysis for kth-degree systems based on reachable set analysis
Sato, Yoko Waseda Univ.
Watanabe, Ryo Osaka Univ.
Uchida, Kenko Waseda Univ.

13:50 1889
Two algorithms arising in analysis of polynomial models
Nesic, Dragan Univ. of California at Santa Barbara

14:10 1894
Analysis of chaotic physical systems and an algorithm for control
Christensen, Scott R. Oakland Univ.
Zohdy, Mohamed A. Oakland Univ.

14:30 1899
Stability of nonlinear control systems based on low-order block-oriented models
Harris, Kenneth R. Univ. of California at Davis
Palazoglu, Ahmet N. Univ. of California at Davis

14:50 1904
Robust stability and performance analysis of systems with hysteresis nonlinearities
Pare, Thomas E. Stanford Univ.
How, Jonathan P. Stanford Univ.

15:10 1909
On steady-state properties of certain max-plus products
Shue, Louis Australian National Univ.
Anderson, Brian D. O. Australian National Univ.
Dey, Subhrakanti Australian National Univ.

Grand Ballroom F

TM06
Identification with applications
Chair: Seborg, Dale E. Univ. of California at Santa Barbara
Co-chair: Meckl, Peter H. Purdue Univ.

13:30 1914
Identification of a fluidized catalytic cracking unit: an orthonormal basis function approach
van Donkelaar, Edwin T. Delft Univ. of Tech.
Heuberger, Peter S. C. RIVM
Van den Hof, Paul M. J. Delft Univ. of Tech.

13:50 1918
Identification of friction at low velocities using wavelet basis function network
Du, Hongliu Univ. of Missouri-Columbia
Nair, Satish S. Univ. of Missouri-Columbia

14:10 1923
System identification of a natural gas engine
Gangopadhyay, Anupam Purdue Univ.
Meckl, Peter H. Purdue Univ.

14:30 1928
Identification of relative degree
Yu, Xinyao Univ. of Toronto
Chen, Zongji Beijing Univ. of Aero. & Astro.

14:50 1933
Laguerre shift identification of a pressurized process
Fischer, B. R. Lulea Univ. of Tech.
Medvedev, Alexander V. Lulea Univ. of Tech.

15:10 1938
A simple recursive algorithm for diagnosis of abrupt changes in signals and systems
Nikiforov, Igor V. Univ. de Tech. de Troyes

Grand Ballroom A

TM07
Systems with delays I
Chair: Bhattacharyya, Shankar P. Texas A&M Univ.
Co-chair: Gu, Keqin Southern Illinois Univ.

13:30 1943
Stability of linear time-delay systems with block-diagonal uncertainty
Gu, Keqin Southern Illinois Univ.

13:50 *
Withdrawn

14:10 1948
Linearization and decoupling of nonlinear delay systems
Germani, A. Univ. degli Studi dell'Aquila
Manes, Costanzo Univ. degli Studi dell'Aquila
Pepe, Pierfomenico Univ. degli Studi dell'Aquila

14:30 1953
N & S conditions of exponential stability for retarded dynamic systems and some applications
Xu, Bugong South China Univ. of Tech.

14:50 *
Numerical computation of cross-covariance functionals for linear systems with multiple time delays
Hwang, Jyh-Haur National Chung Cheng Univ.
Tsay, Sun-Yuan National Chung Cheng Univ.
Hwang, Chyi National Chung Cheng Univ.

15:10 1963
A delay-dependent robust stability criterion for uncertain time-delay systems
Park, Poogyeon Pohang Univ. of Science & Tech.
Moon, Young Soo Seoul National Univ.
Kwon, Wook Hyun Seoul National Univ.

Grand Ballroom B

TM08
H-infinity control
Chair: Collins, Jr., Emmanuel G. — Florida A&M - Florida State
Co-chair: Chen, Jie — Univ. of California at Riverside

13:30 — 1965
Solvability conditions for 4-block H-infinity control problems with infinite and finite jw-axis zeros
Xin, Xin — Tokyo Inst. of Tech.
Mita, Tsutomu — Tokyo Inst. of Tech.
Anderson, Brian D. O. — Australian National Univ.

13:50 — 1970
Parameterization of all controllers for 4-block H-infinity control problems with infinite and finite jw-axis zeros
Anderson, Brian D. O. — Australian National Univ.
Xin, Xin — Tokyo Inst. of Tech.
Mita, Tsutomu — Tokyo Inst. of Tech.

14:10 — 1975
On optimal solutions to two-block H-infinity problems
Hassibi, Babak — Stanford Univ.
Kailath, Thomas — Stanford Univ.

14:30 — 1980
A delta operator approach to discrete-time H-infinity control
Collins, Jr., Emmanuel G. — Florida A&M - Florida State
Song, Tinglun — Florida A&M - Florida State

14:50 — 1985
Existence conditions of discrete-time strictly proper H-infinity controllers
Guo, Lei — Southeast Univ.
Feng, Chun-Bo — Southeast Univ.
Xin, Xin — Tokyo Inst. of Tech.
Fei, Shumin — Southeast Univ.

15:10 — 1987
Robust H-infinity control for systems with sector nonlinear uncertainty in actuators
Gu, Yongru — Zhejiang Univ.
Geng, Chenge — Zhejiang Univ.
Qian, Jixin — Zhejiang Univ.
Wang, Leyu — Zhejiang Univ.

Volume 4

Delaware 1

TM09
Active control of gas turbine engines
Chair: Jacobson, Clas A. — United Technologies Research Ctr.
Co-chair: Ray, Asok — Pennsylvania State Univ.

13:30 — 1989
Experimental application of extremum seeking on an axial-flow compressor
Wang, Hsin-Hsiung — Univ. of Maryland
Yeung, Simon — California Inst. of Tech.
Krstic, Miroslav — Univ. of California at San Diego

13:50 — 1994
Beneficial actuator-induced bifurcations in compressor control
Coller, Brian — Univ. of Illinois at Chicago
Larsen, Michael — Univ. of California at Santa Barbara

14:10 — 1996
Effects of the shape of compressor characteristics on actuator requirements for rotating stall control
Wang, Yong — California Inst. of Tech.
Murray, Richard M. — California Inst. of Tech.

14:30 — 2002
Robust feedback control of combustion instability
Hong, Boe-Shong — Pennsylvania State Univ.
Ray, Asok — Pennsylvania State Univ.
Yang, Vigor — Pennsylvania State Univ.

14:50 — 2004
System identification for limit cycling systems: a case study for combustion instabilities
Murray, Richard M. — California Inst. of Tech.
Jacobson, Clas A. — United Technologies Research Ctr.
Casas, R. — Cornell Univ.
Khibnik, A. I. — United Technologies Research Ctr.
Johnson, C. Richard, Jr. — Cornell Univ.
Bitmead, Robert R. — Australian National Univ.
Peracchio, A. A. — United Technologies Research Ctr.
Proscia, W. M. — United Technologies Research Ctr.

15:10 — *
Withdrawn

Delaware 2

TM10
Fault detection
Chair: Loparo, Kenneth — Case Western Reserve Univ.
Co-chair: Samad, Tariq — Honeywell Tech. Center

13:30 — 2009
Fault detection for time-delay systems: a parity space approach
Kratz, Frederic Roger — LAUT-ENSEM
Nuninger, W. — Inst. National Poly. de Lorraine
Ploix, S. — LAUT-ENSEM

13:50 — 2012
A fault detection and diagnosis approach based on hidden Markov chain model
Zhang, Youmin — State Univ. of New York at Binghamton
Li, Xiao Rong — Univ. of New Orleans
Zhou, Kemin — Louisana State Univ.

14:10 — 2017
A decentralized fault detection filter
Chung, Walter H. — Univ. of California at Los Angeles
Speyer, Jason L. — Univ. of California at Los Angeles

14:30 2022
Multi objective design techniques applied to fault detection and isolation
Niemann, Henrik — Australian National Univ.
Stoustrup, Jakob — Aalborg Univ.

14:50 2027
Norm based threshold selection for fault detectors
Rank, Mike Lind — Tech. Univ. of Denmark
Niemann, Henrik — Tech. Univ. of Denmark

15:10 2032
Detection of common motor bearing faults using frequency-domain vibration signals and a neural network based approach
Li, Bo — North Carolina State Univ.
Goddu, Gregory — North Carolina State Univ.
Chow, Mo-Yuen — North Carolina State Univ.

Delaware 3

TM11
Analytic controller design
Chair: Newman, Brett — Old Dominion Univ.
Co-chair: Jayasuriya, Suhada — Texas A&M Univ.

13:30 2037
Root-locus-based computational algorithms for control system parameter setting
Coelho, Carlos Alberto — Escola Federal de Eng. de Itajuba

13:50 2040
Sketching rules for the multivariable root locus design technique
Newman, Brett — Old Dominion Univ.
Fu, Dongyu — Old Dominion Univ.

14:10 2045
A multivariable laboratory process with an adjustable zero
Johansson, Karl Henrik — Lund Inst. of Tech.
Nunes, Jose Luis Rocha — Univ. of Coimbra

14:30 2050
Robust stabilization for the plant with varying number of unstable poles and low sensitivity characteristics
Yamada, Kou — Yamagata Univ.

14:50 2055
Properties of single input, two output feedback systems
Freudenberg, James S. — Univ. of Michigan
Middleton, Rick H. — Univ. of Newcastle

15:10 2061
Parameterization of proper, reduced structure MIMO tracking prefilters with optimality considerations
Bement, Matt — Texas A&M Univ.
Jayasuriya, Suhada — Texas A&M Univ.

Delaware 4

TM12
Nonlinear control II
Chair: Kravaris, Costas — Univ. of Michigan
Co-chair: Cloutier, James R. — WL-MNAG

13:30 2065
Trajectory morphing for nonlinear systems
Hauser, John E. — Univ. of Colorado
Meyer, David G. — Univ. of Colorado

13:50 2071
Backstepping design for disturbed virtual controls
Shim, H. — Seoul National Univ.
Byun, Jijoon — Seoul National Univ.
Jo, Nam H. — Seoul National Univ.
Seo, Jin H. — Seoul National Univ.

14:10 2076
Controller synthesis for multivariable nonlinear non-minimum-phase processes
Niemiec, Michael — Univ. of Michigan
Kravaris, Costas — Univ. of Michigan

14:30 2081
Global and local stability of backstepping adaptive control for time-varying plants
Rabeh, A. — Laboratoire d'Automatique
Giri, F. — Ecole Mohammadia d'Ingenieurs

14:50 2083
Control of nonlinear systems using iterative feedback tuning
Hjalmarsson, Hakan — Royal Inst. of Tech.

15:10 2088
Fuzzy modeling and uncertainty-based control for nonlinear systems
Lee, T. S. — Georgia Inst. of Tech.
Chen, Ye-Hwa — Georgia Inst. of Tech.
Chuang, Jason — Georgia Inst. of Tech.

Jefferson

TM13
Nonlinear process control
Chair: Christofides, P. — Univ. of California at Los Angeles
Co-chair: Kosanovich, Karlene A. — Univ. of South Carolina
Organizer: Christofides, P. — Univ. of California at Los Angeles

13:30 (I) 2093
Constrained infinite-time quadratic optimal control: the linear stochastic and nonlinear deterministic cases
Chmielewski, Donald J. — Univ. of California at Los Angeles
Manousiouthakis, Vasilios — Univ. of California at Los Angeles

13:50 (I) 2098
Process application of a nonlinear adaptive control strategy based on radial basis function networks
McLain, Richard B. — Louisiana State Univ.
Henson, Michael A. — Louisiana State Univ.

14:10 (I) 2103
On defining the partial control problem: concepts and examples
Kothare, Mayuresh V. — Lehigh Univ.
Shinnar, Reuel — City College of New York
Rinard, Irven — City College of New York
Morari, Manfred — Swiss Fed. Inst. of Tech. ETH

14:30 (I) 2108
Nonlinear reduced order models for separation processes via augmentation of linear subspace models
Docter, William A. — Lehigh Univ.
Georgakis, Christos — Lehigh Univ.

14:50 (I) 2113
Analysis and nonlinear control of an ethyl acetate reactive distillation column
Vora, Nishith — Univ. of Minnesota
Daoutidis, Prodromos — Univ. of Minnesota

15:10 (I) *
Experimental comparison of control structures in binary distillation
Price, Jesse W. — Univ. of Utah
Skliar, Mikhail — Univ. of Utah

Franklin 1

TM14
Control applications in systems with nonsmooth nonlinearities
Chair: Mattice, Michael Scott — US Army, ARDEC
Co-chair: Teolis, Carole — Techno-Sciences, Inc.
Organizer: Mattice, Michael Scott — US Army, ARDEC
Co-organizer: Teolis, Carole — Techno-Sciences, Inc.

13:30 (I) 2118
Eliminating non-smooth nonlinearities with compliant manipulator design
Goldfarb, Michael — Vanderbilt Univ.
Speich, John E. — Vanderbilt Univ.

13:50 (I) 2123
On controlling systems with state-variable constraints
Friedland, Bernard — New Jersey Inst. of Tech.

14:10 (I) 2128
Friction compensation in the presence of flexibility
Tao, Gang — Univ. of Virginia

14:30 (I) *
Multiresolutional variable structure control of hybrid systems
Drakunov, Sergey V. — Tulane Univ.
Meystel, Alexander — Drexel Univ.

14:50 (I) 2133
Robust control of systems involving non-smooth nonlinearities using modified sliding manifolds
Hatipoglu, Cem — Ohio State Univ.
Ozguner, Umit — Ohio State Univ.

15:10 (I) 2138
A variable structure control approach to friction force compensation
Young, K. David — YKK Systems

Franklin 2

TM15
Control applications V
Chair: Batur, Celal — Univ. of Akron
Co-chair: Zaremba, Alexander T. — Ford Motor Co.

13:30 2143
Active damping of engine speed oscillations based on learning control
Zaremba, Alexander T. — Automated Analysis Corp.
Burkov, I. V. — St. Petersburg Tech. Univ.
Stuntz, R. M. — Ford Motor Co.

13:50 2148
Control of hybrid-electric vehicles
Lyshevski, Sergey — Purdue Univ. at Indianapolis
Yokomoto, Charles — Purdue Univ. at Indianapolis

14:10 2150
Feedback control of thermal chlorine (CL2) etching of gallium arsenide (GaAs) using in-situ spectroscopic ellipsometry sensing
Rosen, I. G. — Univ. of Southern California
Parent, T. — Univ. of Southern California
Chen, P. — Univ. of Southern California
Wang, Chunming — Univ. of Southern California
Heitz, R. — Univ. of Southern California
Nagarajan, M. — Univ. of Southern California
Madhukar, A. — Univ. of Southern California

14:30 2155
Draw resonance control for polymer fiber spinning process
Karaman, M. — Hutchinson Technology Inc.
Batur, Celal — Univ. of Akron

14:50 2160
Globally stabilizing controllers for a centrifugal compressor model with spool dynamics
Li, Hua — Georgia Inst. of Tech.
Leonessa, Alexander — Georgia Inst. of Tech.
Haddad, Wassim M. — Georgia Inst. of Tech.

15:10 2165
An expert controller for the laminar cooling process of hot rolled slab
Guan, Shouping — Northeastern Univ.
Wang, Xiaobo — Northeastern Univ.
Chai, Tianyou — Northeastern Univ.

Adams Ballroom A

TM16
Modeling, sensing, and control of composite materials manufacturing
Chair: Mantell, Susan C. — Univ. of Minnesota
Co-chair: Stelson, Kim A. — Univ. of Minnesota
Organizer: Mantell, Susan C. — Univ. of Minnesota
Co-organizer: Stelson, Kim A. — Univ. of Minnesota

13:30 (I) *
Neural network-based real-time intelligent control of the autoclave cure process
Albin, Jr., Donald C. — Lehigh Univ.
Coulter, John P. — Lehigh Univ.
Altan, M. Cengiz — Univ. of Oklahoma
Li, Xun — Univ. of Oklahoma
Rao, Bharath — Univ. of Oklahoma

13:50 (I) *
Installation and testing of an ultrasonic end-of-cure sensor in an autoclave environment
Biermann, Paul J. — Johns Hopkins Univ.
Cranmer, Joan H. — Johns Hopkins Univ.
Lebowitz, Carol A. — Edison Welding Inst.
Brown, Lawrence M. — Naval Surface Warfare Center

14:10 (I) 2170
Modeling and control of the in-situ thermoplastic composite tape-laying process
Sun, Wei-Ching — Univ. of Minnesota
Mantell, Susan C. — Univ. of Minnesota
Stelson, Kim A. — Univ. of Minnesota

14:30 (I) 3875
Development of in-process RTM sensors for thick composite sections
Rooney, Michael — Johns Hopkins Univ.
Biermann, Paul J. — Johns Hopkins Univ.
Carkhuff, Bliss G. — Johns Hopkins Univ.
Shires, D. R. — U.S. Army Research Lab
Mohan, Ram — U.S. Army Research Lab

14:50 (I) 2176
Optimization of gate and vent locations for resin infusion processes using genetic algorithms
Mathur, Roopesh — Univ. of Delaware
Advani, Suresh G. — Univ. of Delaware
Fink, Bruce K. — U.S. Army Research Lab

15:10 (I) 2181
Real-time sensing and control of resin flow in liquid injection molding processes
Parthasarathy, Sanjay — Univ. of Minnesota
Mantell, Susan C. — Univ. of Minnesota
Stelson, Kim A. — Univ. of Minnesota
Bickerton, Simon — Univ. of Delaware
Advani, Suresh G. — Univ. of Delaware

Adams Ballroom B

TM17
Tutorial: Advanced control techniques for robotic manipulators
Chair: Canudas de Wit, C. — Lab. d'Automat. de Grenoble
Organizer: Ge, S. Sam — National Univ. of Singapore

13:30 (I) 2185
Advanced control techniques for robotic manipulators
Ge, S. Sam — National Univ. of Singapore

14:30 (I) 2200
Critical implementation issues in compensation for nonlinearities in industrial robot manipulators by adaptive multilayer neural networks
Lou, Yaolong — National Univ. of Singapore
Holtz, Joachim — Univ. of Wuppertal
Lee, T. H. — National Univ. of Singapore

14:45 (I) 2203
Implementation issues and experimental studies of adaptive robust controllers for robot manipulators
Yao, Bin — Purdue Univ.
Tomizuka, Masayoshi — Univ. of California at Berkeley
Litherland, John — Caterpillar Inc.

15:00 (I) 2206
Robust controller design and implementation for industrial robots: electrically driven rigid body robots
Stepanenko, Yury — Univ. of Victoria
Su, Chun-Yi — Univ. of Victoria
Tang, S. — International Submarine Eng. Ltd.

15:15 (I) 2209
Further experimental results on nonlinear control of flexible joint manipulators
Brogliato, Bernard — Laboratoire d'Automatique de Grenoble
Rey, Daniel — Laboratoire d'Automatique de Grenoble

Gettysburg 1-2

TP01
Mechanical systems control
Chair: Paden, Brad — Magnetic Moments, Ltd.
Co-chair: Johnson, Dexter — NASA Lewis Research Center

16:00 2212
Global stabilization of uncertain mechanical systems with bounded controls
Barany, Ernest — New Mexico State Univ.
Colbaugh, Richard — New Mexico State Univ.

16:20 2217
Adaptive variable bias magnetic bearing control
Johnson, Dexter — NASA Lewis Research Center
Brown, Gerald V. — NASA Lewis Research Center
Inman, Daniel J. — Virginia Tech.

16:40 2224
Limitation of linear controllers for precision magnetic bearings with uncertainties
Kubota, Tetsuya — Massachusetts Inst. of Tech.
Youcef-Toumi, Kamal — Massachusetts Inst. of Tech.

17:00 2229
Speed regulation of an induction motor using methods from nonholonomic control
Pettersen, Kristin Y. — Norwegian Univ. of Science & Tech.
Egeland, Olav — Norwegian Univ. of Science & Tech.

17:20 2231
Design and implementation of a robust controller for a free gyro-stabilized mirror system
Siew, Boon C. — National Univ. of Singapore
Chen, Ben M. — National Univ. of Singapore
Lee, Tong-Heng — National Univ. of Singapore

17:40 2236
A digital H-infinity loop shaping controller for an active mass driver system: a benchmark problem in controlling buildings
Murad, Ghassan Ali — Bahrain Telecom Co.
Al-Gallaf, Ebrahim A. — Univ. of Bahrain

Gettysburg 3-4

TP02
Vehicle dynamics and control
Chair: Stefanopoulou, A. — Univ. of California at Santa Barbara
Co-chair: Alleyne, Andrew G. — Univ. of Illinois at Urbana-Champaign
Organizer: Stefanopoulou, A. — Univ. of California at Santa Barbara
Co-organizer: Peng, Huei — Univ. of Michigan

16:00 (I) 2243
Nonlinear damping in vehicle lateral control: theory and experiment
Chen, Chieh — Applied Komatsu Technology
Guldner, Jurgen — BMW Technik GmbH
Kanellakopoulos, Ioannis — Univ. of California at Los Angeles
Tomizuka, Masayoshi — Univ. of California at Berkeley

16:20 (I) 2248
Automatic steering control of vehicle lateral motion with the effect of roll dynamics
Feng, Kai-Ten — Univ. of California at Berkeley
Tan, Han-Shue — Univ. of California at Berkeley
Tomizuka, Masayoshi — Univ. of California at Berkeley

16:40 (I) 2253
Nonsmooth estimation and adaptive control with application to automotive brake torque
Maciuca, Dragos B. — Univ. of California at Berkeley
Hedrick, J. Karl — Univ. of California at Berkeley

17:00 (I) 2258
A regularization approach to robust variable structure observer design applied to vehicle parameter and state estimation
Krishnaswami, Vasanth — Univ. of Michigan

17:20 (I) 2263
Worst-case maneuvers for the roll-over and jackknife of articulated vehicles
Ma, Wen-Hou — Univ. of Michigan
Peng, Huei — Univ. of Michigan

17:40 (I) 2268
Extended vehicle model for dynamical engine test stands
Schmidt, Martin — Tech. Univ. of Darmstadt

Constitution Ballroom A

TP03
Fuzzy adaptive control
Chair: Yurkovich, Stephen — Ohio State Univ.
Co-chair: Taylor, James H. — Univ. of New Brunswick

16:00 2272
Model-based multivariable fuzzy adaptive controller for paper-making process
Zheng, Huailin — Southeast Univ.
Chen, Weinan — Southeast Univ.

16:20 2274
Design of fuzzy direct adaptive controller and stability analysis for a class of nonlinear systems
Piao, Ying-Guo — Northeastern Univ.
Zhang, Hua-Guang — Northeastern Univ.
Bien, Zeungnam — Korea Adv. Inst. of Science & Tech.

16:40 2276
A multivariable fuzzy generalized predictive control approach and its performance analysis
Zhang, Hua-Guang — Korea Adv. Inst. of Science & Tech.
Bien, Zeungnam — Korea Adv. Inst. of Science & Tech.

17:00 2281
Failure-tolerant control of aircraft: a fuzzy logic approach
Schram, G. — Delft Univ. of Tech.
Copinga, G. J. C. — Delft Univ. of Tech.
Bruijn, P. M. — Delft Univ. of Tech.
Verbruggen, H. B. — Delft Univ. of Tech.

17:20 2286
Recursive optimization procedure for fuzzy-logic controller synthesis
Taylor, James H. — Univ. of New Brunswick
Sheng, Lan — Univ. of New Brunswick

17:40 2289
Fuzzy damage-mitigating control of a fossil-fueled power plant
Holmes, Michael Scott — Pennsylvania State Univ.
Ray, Asok — Pennsylvania State Univ.

Constitution Ballroom B

TP04
Robust stability margin computation
Chair: Crisalle, Oscar D. — Univ. of Florida
Co-chair: Jamshidi, Mo — Univ. of New Mexico

16:00 2294
A mu analysis technique without frequency gridding
Ferreres, Gilles — CERT-ONERA
Biannic, Jean-Marc — CERT-ONERA

16:20 2299
A new perspective on computing robust stability margins for complex parametric uncertainties
Basker, V. R. — Univ. of Florida
Latchman, Haniph A. — Univ. of Florida
Mahon, H. Michael — Univ. of Florida
Crisalle, Oscar D. — Univ. of Florida

16:40 2301
A new method for computing robustness margins for real parametric uncertainties
Mahon, H. Michael — Univ. of Florida
Crisalle, Oscar D. — Univ. of Florida
Latchman, Haniph A. — Univ. of Florida
Yen, K. H. — Univ. of Florida

17:00 2304
An algorithm of symbolic computation for stability margin
Ke, Nainn-Ping — Univ. of Southern California

17:20 2309
A necessary and sufficient 'virtual (interior) edge' solution for checking robust stability of interval matrices
Yedavalli, Rama K. — Ohio State Univ.

17:40 2314
Spherical mu
Khatri, Sven Hiralal — California Inst. of Tech.
Parrilo, Pablo A. — California Inst. of Tech.

Grand Ballroom E

TP05
Nonlinear observer design
Chair: Kravaris, Costas — Univ. of Michigan
Co-chair: Grady, Michael — Dupont Marshal Laboratories

16:00 2319
Do all linear flexible structures have convergent second-order observers?
Balas, Mark J. — Univ. of Colorado at Boulder

16:20 2324
Multi-rate nonlinear state and parameter estimation in a bioreactor
Tatiraju, Srinivas — Drexel Univ.
Soroush, Masoud — Drexel Univ.
Mutharasan, Raj — Drexel Univ.

16:40 2329
Adaptive flux observer for induction motors
Zheng, Yuhong — Case Western Reserve Univ.
Loparo, Kenneth — Case Western Reserve Univ.

17:00 2334
A constant gain observer for nonlinear systems
Busawon, Krishna K. — Simon Fraser Univ.
Saif, Mehrdad — Simon Fraser Univ.

17:20 2339
Nonlinear observer design with unknown nonlinearity via b-spline network approach
Zhang, Hongyue — Beijing Univ. of Aero. & Astro.
Chan, C. W. — Univ. of Hong Kong
Cheung, K. C. — Univ. of Hong Kong
Jin, H. — Beijing Univ. of Aero. & Astro.

17:40 2344
Robustness of a Kalman filter against uncertainties of noise covariances
Sasa, Shuichi — National Aerospace Laboratory

Grand Ballroom F

TP06
Identification of linear and nonlinear systems
Chair: Joseph, Babu — Washington Univ.
Co-chair: Lim, Kyong B. — NASA Langley Research Ctr.

16:00 2349
Observability for simple Wiener and simple Wiener-Hammerstein systems
Nesic, Dragan — Univ. of California at Santa Barbara

16:20 2354
Closed-loop linear model validation and order estimation using cyclic-spectral analysis
Tontiruttananon, Channarong — Auburn Univ.
Tugnait, Jitendra K. — Auburn Univ.

16:40 2359
SM evaluation of frequency response variation rate for H-infinity identification
Giarre, Laura — Politecnico di Torino

17:00 2361
Model set validation and update for time-varying SISO systems
Nagamune, Ryozo — Royal Inst. of Tech.
Yamamoto, Shigeru — Osaka Univ.

17:20 2366
Nonlinear identification of control systems
Lyshevski, Sergey — Purdue Univ. at Indianapolis

17:40 2371
Nonlinear system identification using genetic algorithms with application to feedforward control design
Luh, Guan-Chun — Tatung Inst. of Tech.
Rizzoni, Giorgio — Ohio State Univ.

Grand Ballroom A

TP07
Systems with delays II
Chair: Kapila, Vikram — Polytechnic Univ.
Co-chair: Lehman, Brad — Northeastern Univ.

16:00 2376
On rate-based congestion control in high speed networks: design of an H-infinity based flow controller for single bottleneck
Ozbay, Hitay — Ohio State Univ.
Kalyanaraman, Shivkumar — Rensselaer Polytechnic Inst.
Iftar, Altug — Anadolu Univ.

16:20 2381
Stabilization of linear systems with simultaneous state, actuation, and measurement delays
Kapila, Vikram — Polytechnic Univ.
Haddad, Wassim M. — Georgia Inst. of Tech.
Grivas, Apostolos — Polytechnic Univ.

16:40 2386
Some topics in real-time control
Nilsson, Johan — Lund Inst. of Tech.
Bernhardsson, Bo M. — Lund Inst. of Tech.
Wittenmark, Bjorn — Lund Inst. of Tech.

17:00 2391
A unified approach to time-delay system control: robust and gain-scheduled
Scorletti, Gerard — ENSTA
Fromion, Vincent — Univ. di Roma

17:20 2396
Fixed-structure controller synthesis for systems with input nonlinearities and time delay
Kapila, Vikram — Polytechnic Univ.
Haddad, Wassim M. — Georgia Inst. of Tech.
Grivas, Apostolos — Polytechnic Univ.

17:40 2398
An LMI approach to H-infinity control for linear delay systems
Jeung, Eun Tae — Changwon National Univ.
Kwon, Sung-Ha — Changwon National Univ.
Kim, Jong Hae — Kyungpook National Univ.
Park, Hong Bae — Kyungpook National Univ.

Grand Ballroom B

TP08
Robust H-infinity and H-2 control
Chair: How, Jonathan P. — Stanford Univ.
Co-chair: Kelkar, Atul G. — Kansas State Univ.

16:00 2403
Parametric robust H-infinity controller synthesis: comparison and convergence analysis
Banjerdpongchai, David — Chulalongkorn Univ.
How, Jonathan P. — Stanford Univ.

16:20 2405
Robust H-infinity reliable control for linear state delayed systems with parameter uncertainty
Wang, Zidong — Ruhr-Univ. of Bochum

16:40 2410
Robust H-infinity controller design for linear time-varying uncertain systems with delayed state and control
Wang, Jingcheng — Zhejiang Univ.
Su, Hongye — Zhejiang Univ.
Chu, Jian — Zhejiang Univ.
Yu, Li — Zhejiang Univ.

17:00 2415
Robust reliable H-infinity control for uncertain time-delay systems
Gu, Yongru — Zhejiang Univ.
Geng, Chenge — Zhejiang Univ.
Qian, Jixin — Zhejiang Univ.
Wang, Leyu — Zhejiang Univ.

17:20 2417
Robust H-infinity control for linear time-delay systems subject to norm-bounded nonlinear uncertainty
Gu, Yongru — Zhejiang Univ.
Geng, Chenge — Zhejiang Univ.
Qian, Jixin — Zhejiang Univ.
Wang, Leyu — Zhejiang Univ.

17:40 2421
Robust H2 control of descriptor system with time-varying uncertainty
Takaba, Kiyotsugu — Kyoto Univ.
Katayama, Tohru — Kyoto Univ.

Delaware 1

TP09
Target tracking
Chair: Evans, Jamie — Univ. of Melbourne
Co-chair: Li, Xiao Rong — Univ. of New Orleans

16:00 2427
Multiple target tracking using a multirate IMMJPDA algorithm
Hong, Lang — Wright State Univ.
Ding, Zhen — Wright State Univ.

16:20 2432
The PMHT for maneuvering targets
Ruan, Yanhua — Univ. of Connecticut
Willett, Peter K. — Univ. of Connecticut
Streit, Roy — Naval Undersea Warfare Ctr.

16:40 2434
On alpha-beta target tracking initiation
Rawicz, Paul L. — Drexel Univ.
Kalata, Paul — Drexel Univ.
Chmielewski, T. A. — Drexel Univ.
Murphy, Kevin — Drexel Univ.

17:00 2439
Model-set adaptation in variable-structure MM estimation by hypothesis testing
Li, Xiao Rong — Univ. of New Orleans

17:20 2444
Image based maneuvering target tracking
Laneuville, D. — Matra Systemes & Information
Dufour, Francois — CNRS-ESE
Bertrand, Pierre P. — CNRS-ESE

17:40 2450
A multiple model framework for image-enhanced tracking of maneuvering targets
Evans, Jamie — Univ. of Melbourne
Evans, Robin J. — Univ. of Melbourne

Delaware 2

TP10
Fault diagnosis
Chair: Mehra, Raman K. — Scientific Systems Co. Inc.
Co-chair: Keel, Lee H. — Tennessee State Univ.

16:00 2455
A stable scheme for automatic control reconfiguration in the presence of actuator failures
Boskovic, Jovan D. — Scientific Systems Co. Inc.
Yu, Ssu-Hsin — Scientific Systems Co. Inc.
Mehra, Raman K. — Scientific Systems Co. Inc.

16:20 2460
Robust control of flexible structures against structural damage
Ahmad, S. S. — Tennessee State Univ.
Lew, J. S. — Tennessee State Univ.
Keel, Lee H. — Tennessee State Univ.

16:40 2465
Fault detection for time-delay systems by data reconciliation
Kratz, Frederic Roger — LAUT-ENSEM
Nuninger, W. — Inst. National Poly. de Lorraine
Ragot, Jose — Inst. National Poly. de Lorraine

17:00 2470
Model-free fault diagnosis for nonlinear systems: a combined kernel-regression and neural networks approach
Fenu, G. — DEEI-Univ. of Trieste
Parisini, Thomas — DEEI-Univ. of Trieste

17:20 2472
A governing equation based fault detection and diagnosis algorithm and its application in a chemical plant
Zhang, Jie — Imperial College
Zhang, Suzhen — East China Univ. of Sci. & Tech.
Thornhill, Nina — Imperial College

17:40 2477
Decentralized fault tolerant stabilization for symmetric composite systems
Huang, Shoudong — Northeastern Univ.
Zhang, Si-Ying — Northeastern Univ.

Delaware 3

TP11
Quantitative and robust feedback design
Chair: Fadali, Mohammed Sami — Univ. of Nevada
Co-chair: Datta, Aniruddha — Texas A&M Univ.

16:00 2481
Robust decoupled controller design with quantitative feedback theory
Chang, Jin-Chuan — Chung Cheng Inst. of Tech.
Chang, Yeong-Hwa — Chung Cheng Inst. of Tech.
Chen, Li-Wei — Chung Cheng Inst. of Tech.

16:20 2486
QFT design for uncertain nonminimum phase and unstable plants
Chen, Wenhua — Univ. of Glasgow
Ballance, Donald J. — Univ. of Glasgow

16:40 2491
An approach to the robust SPR problem through interpolation and avoidance: connections with the robust stability problem
Mosquera, Carlos — Univ. de Vigo
Perez, Fernando — Univ. de Vigo

17:00 2496
Design of P, PI and PID controllers for interval plants
Ho, Ming-Tzu — Texas A&M Univ.
Datta, Aniruddha — Texas A&M Univ.
Bhattacharyya, Shankar P. — Texas A&M Univ.

17:20 2502
Robust D-stability via positivity
Siljak, Dragoslav D. — Santa Clara Univ.
Stipanovic, D. M. — Santa Clara Univ.

17:40 2510
Some novel characterizations of generic rank of structured matrix
Li, Kang — Delft Univ. of Tech.
Xi, Yugeng — Shanghai Jiao Tong Univ.
Zhang, Yu — National Univ. of Singapore

Delaware 4

TP12
Singular systems
Chair: Terrell, William J. — Virginia Commonwealth Univ.
Co-chair: Huang, Jie — Chinese Univ. of Hong Kong

16:00 2515
A computational linearization principle for observability of nonlinear DAEs near a trajectory
Terrell, William J. — Virginia Commonwealth Univ.

16:20 2520
Control design via generalized state space system with state derivative measurement and reciprocal state space system
Tseng, Yuan Wei — Ohio State Univ.
Yedavalli, Rama K. — Ohio State Univ.

16:40 2522
On the reduction of a general 2-d polynomial system matrix to g.s.s. form
McInerney, S. J. — Loughborough Univ.
Pugh, Ashley C. — Loughborough Univ.
Boudellioua, M. S. — Al-Ahsa College of Tech.
Hayton, G. E. — Leeds Metropolitan Univ.

17:00 2527
Impulse-free output regulation of singular nonlinear systems
Huang, Jie — Chinese Univ. of Hong Kong
Zhang, Jifeng — Chinese Academy of Sciences

17:20 *
Doubly coprime factorizations for singular system
Gao, Zhiwei — Tianjin Univ.
Wang, Xian-Lai — Tianjin Univ.
Liu, Bao-Kun — Tianjin Univ.
Li, Guangquan — Tianjin Univ.

17:40 2532
Stabilization of nonlinear singular systems
Liu, Yongqing — South China Univ. of Tech.
Li, Yuanqing — South China Univ. of Tech.

Jefferson

TP13
Advances in nonlinear model-based control
Chair: Badgwell, Thomas A. — Rice Univ.
Co-chair: Henson, Michael A. — Louisiana State Univ.
Organizer: Bequette, B. Wayne — Rensselaer Polytechnic Inst.

16:00 (I) 2534
Towards a practical nonlinear predictive control algorithm with guaranteed stability for large-scale systems
Zheng, Alex — Univ. of Massachusetts
Allgower, Frank — Institut fur Automatik ETH, Zurich

16:20 (I) *
Withdrawn

16:40 (I) 2539
Nonlinear feedback control of parabolic PDE systems with time-dependent spatial domains
Armaou, Antonio — Univ. of California at Los Angeles
Christofides, P. — Univ. of California at Los Angeles

17:00 (I) 2544
Nonlinearity measures for a class of SISO nonlinear systems
Sun, Debin — Univ. of South Carolina
Kosanovich, Karlene A. — Univ. of South Carolina

17:20 (I) 2549
Nonlinear model predictive control of a continuous bioreactor at near-optimum conditions
Parker, Robert S. — Univ. of Delaware
Doyle III, Francis J. — Univ. of Delaware

17:40 (I) 3896
Wastewater neutralization control using a neural network based model predictive controller
Kuo, Lin-En — Yuan-Pei Inst. of Medical Tech.
Melsheimer, Stephen S. — Clemson Univ.

Franklin 1

TP14
Structural control for civil engineering applications
Chair: Sain, Patrick M. — Raytheon Systems Co.
Co-chair: Sain, Michael K. — Univ. of Notre Dame
Organizer: Spencer, Jr., B. F. — Univ. of Notre Dame
Co-organizer: Sain, Michael K. — Univ. of Notre Dame

16:00 (I) 2554
Hybrid control of buildings using nonlinear polynomial output feedback
Agrawal, A. K. — Univ. of California at Irvine
Yang, Jann N. — Univ. of California at Irvine
Schmitendorf, William E. — Univ. of California at Irvine

16:20 (I) 2559
The Bouc hysteresis model: an initial study of qualitative characteristics
Sain, Patrick M. — Raytheon Systems Co.
Sain, Michael K. — Univ. of Notre Dame
Spencer, Jr., B. F. — Univ. of Notre Dame
Sain, John D. — Univ. of Arizona

16:40 (I) 2564
Investigating a reliable covariance control scheme for MDOF systems
Field, Jr., Richard V. — Sandia National Laboratories
Bergman, L. — Univ. of Illinois at Urbana-Champaign

17:00 (I) 2569
Experiments in robust control on a laboratory model of a six story building
Calise, Anthony J. — Georgia Inst. of Tech.
Craig, J. I. — Georgia Inst. of Tech.
Gong, G. — Georgia Inst. of Tech.

17:20 (I) 2574
Applications of a low power approach to structural control
Thai, Khiem — Univ. of California at Irvine
Jabbari, Faryar — Univ. of California at Irvine
Bobrow, James E. — Univ. of California at Irvine

17:40 (I) *
Integrated design of controlled engineering systems
Skelton, Robert E. — Univ. of California at San Diego

Franklin 2

TP15
Control applications VI
Chair: Morelli, Eugene A. — NASA Langley Research Ctr.
Co-chair: Istepanian, Robert — Univ. of Portsmouth

16:00 2579
Interactive multi-domain system analysis and design
Smid, G. E. — Oakland Univ.
Cheok, Ka Chai — Oakland Univ.

16:20 2584
An algorithm for H-infinity optimization of a linear time invariant system using singular value decomposition
Burchett, Bradley T. — United States Military Academy
Costello, Mark F. — Oregon State Univ.

16:40 2589
Nonlinear aircraft control using a minimal radial basis function neural network
Nigel, Chua Boon Hong — Nanyang Tech. Univ.
Sundararajan, N. — Nanyang Tech. Univ.
Saratchandran, P. — Nanyang Tech. Univ.

17:00 2591
Stochastic modeling of fatigue crack dynamics for risk analysis and remaining life prediction
Ray, Asok — Pennsylvania State Univ.

17:20 *
Cumulants-based ANFIS modeling
Zhou, S. C. — Hong Kong Polytechnic Univ.
Wong, T. T. — Hong Kong Polytechnic Univ.
Leung, T. P. — Hong Kong Polytechnic Univ.
Shuai, O. L. — South China Univ. of Tech.

17:40 2596
Maximizing lower bound stability measure of finite precision PID controller realizations by nonlinear programming
Istepanian, Robert — Univ. of Portsmouth
Wu, Jun — Zhejiang Univ.
Chu, Jian — Zhejiang Univ.
Whidborne, James F. — King's College

Adams Ballroom A

TP16

Active noise control: theory and experiments

Chair: Hollot, Christopher V. — Univ. of Massachusetts
Co-chair: Bernstein, Dennis S. — Univ. of Michigan
Organizer: Hollot, Christopher V. — Univ. of Massachusetts
Co-organizer: Bernstein, Dennis S. — Univ. of Michigan

16:00 (I) 2601
Active control of noise and vibration in acoustic ducts and flexible structures - a spatial control approach
Reza Moheimani, S. O. — Univ. of Newcastle
Pota, H. — Australian Defense Force Academy
Petersen, Ian R. — Australian Defense Force Academy

16:20 (I) 2606
Active control of a reverberant enclosure using an approximate constant volume velocity source
Lane, Steven A. — Duke Univ.
Clark, Robert L. — Duke Univ.

16:40 (I) 2611
Active acoustic treatment (AAT) - a step toward a perfect sound absorber
Mehta, Prashant G. — United Technologies Research Ctr.
Zander, Anthony — United Technologies Research Ctr.
Patrick, Bill — United Technologies Research Ctr.
Zhang, Youping — United Technologies Research Ctr.

17:00 (I) 2616
Active noise control for periodic disturbances
Bodson, Marc — Univ. of Utah
Jensen, Jonathan S. — Univ. of Utah
Douglas, Scott C. — Univ. of Utah

17:20 (I) *
Designing ANC systems directly from frequency responses
Hollot, Christopher V. — Univ. of Massachusetts
Chait, Yossi — Univ. of Massachusetts

17:40 (I) 2621
Active control of noise using a pneumatic servovalve
Sane, Harshad S. — Univ. of Michigan
Bernstein, Dennis S. — Univ. of Michigan

Volume 5

Grand Ballroom C&D

Plenary Session III

Chair: Bequette, B. Wayne — Rensselaer Polytechnic Inst.
Co-chair: Heck, Bonnie S. — Georgia Inst. of Tech.

8:30 - 9:30
Controlling Industrial Chemical Processes
Babatunde Ogunnaike — E.I. du Pont de Nemours and Co.

Gettysburg 1-2

FA01

Vibration control via command shaping

Chair: Meckl, Peter H. — Purdue Univ.
Co-chair: Magee, David P. — Texas Instruments Inc.
Organizer: Meckl, Peter H. — Purdue Univ.

10:00 (I) 2627
Optimized S-curve motion profiles for minimum residual vibration
Meckl, Peter H. — Purdue Univ.
Arestides, Peter B. — Purdue Univ.
Woods, Matthew C. — Purdue Univ.

10:20 (I) 2632
Closed-form generation of specified-fuel commands for flexible systems
Mills, Bart W. — Massachusetts Inst. of Tech.
Singhose, William E. — Massachusetts Inst. of Tech.
Seering, Warren P. — Massachusetts Inst. of Tech.

10:40 (I) 2637
Optimal filtering to minimize the elastic behavior in serial link manipulators
Magee, David P. — Texas Instruments Inc.
Book, Wayne J. — Georgia Inst. of Tech.

11:00 (I) 2643
Command shaping control of an operator-in-the-loop boom crane
Lewis, Derek — Michigan Tech. Univ.
Parker, Gordon G. — Michigan Tech. Univ.
Driessen, Brian J. — Sandia National Labs.
Robinett III, R. D. — Sandia National Labs.

11:20 (I) 2648
Point-to-point control of a MIMO servomechanism
de Roover, Dick — SC Solutions Inc.
Sperling, F. B. — Philips Research
Bosgra, Okko H. — Delft Univ. of Tech.

11:40 (I) 2652
Learning input shaping technique for non-LTI systems
Park, Juyi — Korea Adv. Inst. of Sci. & Tech.
Chang, Pyung Hun — Korea Adv. Inst. of Sci. & Tech.

Gettysburg 3-4

FA02

Symbolic computing in control

Chair: Kwatny, Harry G. — Drexel Univ.
Co-chair: Ogunye, A. — Air Products & Chemicals, Inc.
Organizer: Kwatny, Harry G. — Drexel Univ.

10:00 (I) 2657
Polynomial matrix analysis using symbolic computation
Ogunye, Ayowale B. — Air Products & Chemicals, Inc.

10:20 (I) 2662
Generating parameter-dependent linear families from nonlinear dynamics
Kwatny, Harry G. — Drexel Univ.
Chang, Bor-Chin — Drexel Univ.

10:40 (I) *
Experiments with symbolic computation for active noise and vibration control
Ghanadan, Reza — Lucent Technologies

11:00 (I) 2667
Nonlinear system analysis applied to the numerical conditioning of dynamical models for physical processes
Weiss, M. — Tech. Univ. of Eindhoven
Preisig, Heinz A. — Univ. of New South Wales

11:20 (I) 2672
NL control: a symbolic computation toolbox for nonlinear control by extended linearization
Rodriguez-Millan, Jesus — Univ. de Los Andes

11:40 (I) 2677
Modeling and simulation for control design
Salter, Eric — Techno-Sciences, Inc.
LaVigna, Chris — Techno-Sciences, Inc.
Mattice, Mike — Picatinny Arsenal
Devito, Mary — Picatinny Arsenal
Testa, Bob — Picatinny Arsenal

Constitution Ballroom A

FA03
Learning and repetitive control
Chair: Balakrishnan, S. N. — Univ. of Missouri-Rolla
Co-chair: Sasiadek, Jurek — Carleton Univ.

10:00 2682
Repetitive control experiments for a CD player
Lee, Richard C. H. — Univ. of Cambridge
Smith, Malcolm C. — Univ. of Cambridge

10:20 2685
A new method on repetitive tracking control of electro-hydraulic servo systems
Tang, Xiaoqi — Hong Kong Univ. of Science & Tech.
Cai, Lilong — Hong Kong Univ. of Science & Tech.
Huang, Weiqing — Hong Kong Univ. of Science & Tech.

10:40 2687
Synthesis and analysis of digital multiple repetitive control systems
Chang, Woo Sok — Massachusetts Inst. of Tech.
Suh, Il Hong — Hanyang Univ.
Oh, Jae-Hyuk — Massachusetts Inst. of Tech.

11:00
Iterative learning control for non-minimum phase systems
Gao, Jianbing — Iowa State Univ.
Chen, Degang — Iowa State Univ.

11:20 2692
Application of repetitive controllers to nonlinear plants
Ghosh, Jayati — Univ. of California at Santa Barbara
Paden, Brad — Univ. of California at Santa Barbara

11:40 2698
Constrained SPSA controller for operations processes
Rezayat, Fahimeh — California State Univ.

Constitution Ballroom B

FA04
Robust control I
Chair: Zhou, Kemin — Louisiana State Univ.
Co-chair: Chellaboina, Vijaya S. — Georgia Inst. of Tech.

10:00 2703
Algebraic approach to robust controller design: a geometric interpretation
Henrion, Didier — LAAS-CNRS
Sebek, Michael — Czech Academy of Sciences
Tarbouriech, Sophie — LAAS-CNRS

10:20 2708
Robust control for uncertain linear systems with constraints on output
Hu, Lisheng — Zhejiang Univ.
Sun, You-Xian — Zhejiang Univ.
Cao, Yong-Yan — Univ. of Hong Kong

10:40 2713
Practical stabilization of nonlinear uncertain systems without matching conditions
Fei, Shumin — Southeast Univ.
Feng, Chun-Bo — Southeast Univ.

11:00 2718
A framework for robustness analysis of constrained finite receding horizon control
Primbs, James A. — California Inst. of Tech.
Nevistic, Vesna — ETH Swiss Fed. Inst. of Tech.

11:20 2723
Robust H-infinity state feedback control for generalized parameter uncertain system with time delays in discrete time case
Kim, Jong Hae — Kyungpook National Univ.
Jeung, Eun Tae — Changwon National Univ.
Lee, Sang Kyung — Kyungpook National Univ.
Park, Hong Bae — Kyungpook National Univ.

11:40 2725
Robust stabilization of singular systems with H-infinity-bounded uncertainty
Su, Qing — Univ. of Hawaii at Manoa
Syrmos, Vassilis L. — Univ. of Hawaii at Manoa

Grand Ballroom E

FA05
Filtering and estimation
Chair: Psiaki, Mark L. — Cornell Univ.
Co-chair: Palazoglu, Ahmet N. — Univ. of California at Davis

10:00 2730
Filtering and differentiating noisy signals using neural networks
Schmidt, Martin — Darmstadt Univ. of Tech.
Nelles, Oliver — Darmstadt Univ. of Tech.

10:20 2732
A class of nonlinear filtering problems arising from drifting sensor gains
Vincent, Tyrone L. — Colorado School of Mines
Khargonekar, Pramod P. — Univ. of Michigan

10:40 2737
Machine friction estimation for modeling, diagnostics, and control
Ray, Laura — Dartmouth College
Remine, Jennifer S. — Dartmouth College

11:00 2742
Processing remote sensing data to categorize lake bed surficial substrates
Bonde, John — Univ. of Minnesota
Cholwek, Gary — Great Lakes Science Center
Li, Xing — Univ. of Minnesota
Richards, Carl — Univ. of Minnesota
Yin, K. Karen — Univ. of Minnesota

11:20 2744
Square-root information filtering and fixed-interval smoothing with singularities
Psiaki, Mark L. — Cornell Univ.

11:40 2749
Controlling target estimate covariance in centralized multisensor systems
Kalandros, Michael — Univ. of Colorado
Pao, Lucy Y. — Univ. of Colorado

Grand Ballroom F

FA06
Identification I

Chair: Bai, Er-Wei — Univ. of Iowa
Co-chair: Tao, Gang — Univ. of Virginia

10:00 — 2754
Uncertainty model unfalsification with simulation
Woodley, Bruce R. — Stanford Univ.
Kosut, Robert L. — SC Solutions
How, Jonathan P. — Stanford Univ.

10:20 — 2756
An optimal two stage identification algorithm for Hammerstein-Wiener nonlinear systems
Bai, Er-Wei — Univ. of Iowa

10:40 — 2761
Identification and design of time varying system
Tsumura, Koji — Chiba Univ.
Kimura, Hidenori — Univ. of Tokyo

11:00 — 2766
Performance analysis of N4SID state-space system identification
Flint, T. W. — Univ. of Rhode Island
Vaccaro, R. J. — Univ. of Rhode Island

11:20 — 2768
An identification method for a class of linear time-varying systems
Feng, Chun-Bo — Southeast Univ.
Yin, Bin — Southeast Univ.

11:40 — 2770
LMS identification of systems with dynamics and an output deadzone
Rekow, Andrew — Stanford Univ.
Jones, Vincent K. — Stanford Univ.
Parkinson, Bradford W. — Stanford Univ.

Grand Ballroom A

FA07
Stability I

Chair: Reveliotis, Spyros A. — Georgia Inst. of Tech.
Co-chair: Yedavalli, Rama K. — Ohio State Univ.

10:00 — 2775
Stabilization of an electromagnetically controlled oscillator
Hong, Jeongho — Univ. of Michigan
Cummings, Ian A. — Univ. of Michigan
Bernstein, Dennis S. — Univ. of Michigan
Washabaugh, Peter D. — Univ. of Michigan

10:20 — 2780
The instability of last-buffer-first-serve scheduling policy for capacitated re-entrant lines
Reveliotis, Spyros A. — Georgia Inst. of Tech.

10:40 — 2785
A topological obstruction to global asymptotic stabilization of rotational motion and the unwinding phenomenon
Bhat, Sanjay P. — Indian Inst. of Tech.
Bernstein, Dennis S. — Univ. of Michigan

11:00 — 2790
Relationships between input-output stability and exponentially stable periodic orbits
Chung, Chung Choo — Hanyang Univ.
Hauser, John — Univ. of Colorado

11:20 — 2795
Output stabilizability of periodic systems: necessary and sufficient conditions
Colaneri, Patrizio — Politecnico di Milano
de Souza, Carlos E. — Univ. of Newcastle
Kucera, Vladimir — Czech Academy of Sciences

11:40 — 2797
On parametric stability margin maximization using state feedback pole assignment
Hu, Ting-Shu — Univ. of Waterloo
Lam, James — Univ. of Hong Kong

Grand Ballroom B

FA08
Optimization methods

Chair: Agrawal, Sunil K. — Univ. of Delaware
Co-chair: Collins, Jr., E. — Florida A&M - Florida State

10:00 — 2802
Primal-dual quadratic programming approach to multiple conflict resolution
Oh, Jae-Hyuk — Massachusetts Inst. of Tech.
Feron, Eric — Massachusetts Inst. of Tech.

10:20 — 2807
Safety certification of air traffic conflict resolution algorithms involving more than two aircraft
Oh, Jae-Hyuk — Massachusetts Inst. of Tech.
Feron, Eric — Massachusetts Inst. of Tech.

10:40 — 2812
An efficient optimization technique for image restoration
Maryak, John L. — Johns Hopkins Univ.

11:00 — 2814
On solving semidefinite programming by quantifier elimination
Anai, Hirokazu — Fujitsu Laboratories, Ltd.

11:20 — 2819
Optimization of a class of linear time-periodic systems: a new approach via transformation to a canonical form
Agrawal, Sunil K. — Univ. of Delaware
Xu, Xiaochun — Univ. of Delaware

11:40 — 2824
Randomized algorithms for a certain real mu computation problem
Yoon, Albert — Univ. of Michigan
Khargonekar, Pramod P. — Univ. of Michigan

Delaware 1

FA09
Design of non-fragile controllers

Chair: Dorato, Peter — Univ. of New Mexico
Co-chair: Haddad, Wassim M. — Georgia Inst. of Tech.
Organizer: Dorato, Peter — Univ. of New Mexico
Co-organizer: Haddad, Wassim M. — Georgia Inst. of Tech.

10:00 (I) — 2829
Non-fragile controller design: an overview
Dorato, Peter — Univ. of New Mexico

10:20 (I) — 2832
How to escape from the fragility trap
Kaesbauer, Dieter — DLR Oberpfaffenhofen
Ackermann, Juergen — DLR Oberpfaffenhofen

10:40 (I) 2837
Robust resilient dynamic controllers for systems with parametric uncertainty and controller gain variations
Haddad, Wassim M. — Georgia Inst. of Tech.
Corrado, Joseph R. — Georgia Inst. of Tech.

11:00 (I) 2842
Robust, non-fragile and optimal controller design via linear matrix inequalities
Jadbabaie, Ali — California Inst. of Tech.
Abdallah, Chaouki T. — Univ. of New Mexico
Famularo, D. — Univ. della Calabria
Dorato, Peter — Univ. of New Mexico

11:20 (I) 2847
Control of ATM networks: fragility and robustness issues
Blanchini, Franco — Univ. degli Studi di Udine
Lo Cigno, R. — Politecnico di Torino
Tempo, Roberto — Politecnico di Torino

11:40 (I) 2852
Stability margins and digital implementation of controllers
Keel, Lee H. — Tennessee State Univ.
Bhattacharyya, Shankar P. — Texas A&M Univ.

Delaware 2

FA10
Fault diagnosis and prediction
Chair: Demetriou, Michael A. — Polytechnic Inst.
Co-chair: Vemuri, Arun T. — Southwest Research Inst.

10:00 2857
On the use of on-line approximators for sensor fault diagnosis
Vemuri, Arun T. — Southwest Research Inst.
Polycarpou, Marios M. — Univ. of Cincinnati

10:20 2862
Failure detection methods to predict loss of control involving human-interface devices: part I, theory
Repperger, Daniel W — Wright Patterson Air Force Base
Haas, M. W. — Wright Patterson Air Force Base
Schley, P. C — Systems Research Laboratories
Koivo, A. J. — Purdue Univ.

10:40 2867
Nonlinear decoupling approach to fault isolation in linear systems
Garcia, Efrain A. — Gerhard-Mercator Univ. of Duisburg
Seliger, Ralf J. — Gerhard-Mercator Univ. of Duisburg
Frank, Paul M. — Gerhard-Mercator Univ. of Duisburg

11:00 2872
Fault diagnosis and accommodation in dynamic systems: application to a DC motor
Sauter, Dominique D. J. — Univ. Henri Poincare-Nancy 1
Hamelin, Frederic — Univ. Henri Poincare-Nancy 1
Noura, Hassan — Univ. Henri Poincare-Nancy 1

11:20 2874
Neural state estimators for direct model-based fault diagnosis
Alessandri, A. — CNR-IAN National Research Council
Parisini, Thomas — DEEI-Univ. of Trieste

11:40 2879
Fault detection, diagnosis and accommodation of dynamical systems with actuator failures via on-line approximators
Demetriou, Michael A. — Worcester Polytechnic Inst.
Polycarpou, Marios M. — Univ. of Cincinnati

Delaware 3

FA11
Time varying control
Chair: Utkin, Vadim I. — Ohio State Univ.
Co-chair: Lawrence, Douglas A. — Ohio Univ.

10:00 2884
Time-varying linear system decomposed control
Loukianov, Alexander G. — CINVESTAV IPN
Utkin, Vadim I. — Ohio State Univ.

10:20 2889
Synthesis of time-varying bandwidth filters based on all-pole LTI prototypes
Zhu, J. Jim — Louisiana State Univ.
Mickle, M. Chris — Louisiana State Univ.

10:40 2895
Application of adaptive controllers to a solar power plant using a multi-model description
Pickhardt, R. — Ruhr-Univ. of Bochum

11:00 2900
Performance with regulation constraints
Stoorvogel, Anton A. — Eindhoven Univ. of Tech.
Saberi, Ali — Washington State Univ.
Sannuti, P. — Rutgers Univ.

11:20 2905
A set of discrete-time linear systems which has a common Lyapunov function and its extension
Mori, Yoshihiro — Kyoto Inst. of Tech.
Mori, Takehiro — Kyoto Inst. of Tech.
Kuroe, Yasuaki — Kyoto Inst. of Tech.

11:40 2907
A stability property of nonlinear sampled-data systems with slowly varying inputs
Lawrence, Douglas A. — Ohio Univ.

Delaware 4

FA12
Nonlinear control applications
Chair: Jacobson, C. — United Technologies Research Ctr.
Co-chair: Thompson, David F. — Univ. of Cincinnati

10:00 2912
Robust stability of nonlinear hydraulic servo systems using closest Hopf bifurcation techniques
Kremer, Gregory G. — Univ. of Cincinnati
Thompson, David F. — Univ. of Cincinnati

10:20 2917
Nonlinear fuzzy control on a hydraulic servo system
Zhao, Yongqian — Ecole de Tech. Superieure
LeQuoc, Sinh — Ecole de Tech. Superieure
Saad, Maarouf — Ecole de Tech. Superieure

10:40 2922
Nonlinear control of a reuseable rocket engine for life extension
Lorenzo, Carl F. — NASA Lewis Research Ctr.
Holmes, Michael Scott — Pennsylvania State Univ.
Ray, Asok — Pennsylvania State Univ.

11:00 2927
Nonlinear control of electrostatically shaped membrane with state and control constraints
Kolmanovsky, Ilya V. — Ford Motor Co.
Miller, Robert H. — Univ. of Michigan
Washabaugh, Peter D. — Univ. of Michigan
Gilbert, Elmer G. — Univ. of Michigan

11:20 2932
L2-gain performance analysis for nonlinear robust visual servo control
Maruyama, Akira — Japan Advanced Inst. of Sci. & Tech.
Fujita, Masayuki — Japan Advanced Inst. of Sci. & Tech.

11:40 2937
Lyapunov based draw resonance controller for polymer sheet extrusion
Nizami, J. — Univ. of Akron
Batur, Celal — Univ. of Akron

Jefferson

FA13
Implementation of advanced process control

Chair: Muske, Kenneth R. — Villanova Univ.
Co-chair: Ogunnaike, Babatunde A. — DuPont CS&E
Organizer: Muske, Kenneth R. — Villanova Univ.
Co-organizer: Ogunnaike, Babatunde A. — DuPont CS&E

10:00 (I) 2942
Implementation of advanced process control - perspectives from industry
Downs, James J. — Eastman Chemical Co.
Ogunnaike, Babatunde A. — DuPont CS&E
Muske, Kenneth R. — Villanova Univ.

10:20 (I) 2944
Implementation of advanced process control - perspectives from academia
MacGregor, J. F. — McMaster Univ.
Georgakis, Christos — Lehigh Univ.
Muske, Kenneth R. — Villanova Univ.

10:40 (I) *
Panel Discussion

11:00 (I) 2946
Implementation of model predictive control on a hydrothermal oxidation reactor
Muske, Kenneth R. — Villanova Univ.
Dell'Orco, Phillip C. — Los Alamos National Lab.
Le, Loan A. — Los Alamos National Lab.
Flesner, Raymond L. — Los Alamos National Lab.

11:20 (I) 2951
Implementation of a predictive modeling technique on a DCS
Rietz, Christy A. — Iowa State Univ.
Rollins, Derrick — Iowa State Univ.

11:40 (I) •
Panel Discussion

Franklin 1

FA14
Control and identification of power systems I

Chair: Sanchez-Gasca, J. J. — GE Electrical Dist. & Control
Co-chair: Trudnowski, Dan J. — Montana Tech
Organizer: Sanchez-Gasca, J. J. — GE Electrical Dist. & Control

10:00 (I) 2956
Application of the Steiglitz-McBride identification algorithm to measured data from a power system simulator
Okamoto, H. — Tokyo Elect. Power Co.
Sanchez-Gasca, J. J. — GE Power Systems
Clark, K. — GE Power Systems
Wegner, C. A. — GE Power Systems
Miller, N. W. — GE Power Systems
Chow, Joe H. — Rensselaer Polytechnic Inst.

10:20 (I) 2963
Multi-loop power system stabilizers using wide-area synchronous phasor measurements
Kamwa, Innocent — IREQ
Gerin-Lajoie, L. — Hydro-Quebec
Trudel, G. — Hydro-Quebec

10:40 (I) 2968
SIMO system identification from measured ringdowns
Trudnowski, Dan J. — Montana Tech
Johnson, Jeffrey M. — Pacific Northwest National Lab.
Hauer, John F. — Pacific Northwest National Lab.

11:00 (I) 2973
Modeling of nonlinear system uncertainties using a linear fractional transformation approach
Boukarim, George — ABB Power T&D Co.
Chow, Joe H. — Rensselaer Polytechnic Inst.

11:20 (I) 2980
Identifying swing mode bifurcations and associated limits on available transfer capability
DeMarco, Christopher L. — Univ. of Wisconsin-Madison

11:40 (I) 2986
Information, reliability, and control in the new power system
Hauer, John F. — Pacific Northwest National Lab.
Taylor, C. W. — Bonneville Power Administration

Franklin 2

FA15
Industrial applications I

Chair: Gorinevsky, D. — Honeywell-Measurex Devron Inc.
Co-chair: Grimble, Michael John — Univ. of Strathclyde

10:00 2992
Fault tolerant strip tension control
Hearns, Gerald — Univ. of Strathclyde
Grimble, Michael John — Univ. of Strathclyde

10:20 2997
Paper machine dry line position control during grade changes
Larsson, John Erik — Lulea Univ. of Tech.
Gustafsson, Thomas — Lulea Univ. of Tech.

10:40 3002
Robust GMV cross directional control of paper machines
Stewart, Greg — Honeywell-Measurex Devron Inc.
Gorinevsky, Dimitry M. — Honeywell-Measurex Devron Inc.
Dumont, Guy A. — Univ. of British Columbia

11:00 3008
The virtual shaft control algorithm for synchronized motion control
Payette, Kevin — HiTech Control Systems Inc.

11:20 3013
A cutting force monitoring system based on AC spindle drive
Huh, Kunsoo — Hanyang Univ.
Jung, Jung-Ju — Samsung Electronics Co.
Lee, Kang-Kyu — LG Electronics Co.

11:40 3018
Some observations on modeling and control of cement grinding circuits
Boulvin, M. — Poly. de Mons
Vande Wouwer, Alain — Poly. de Mons
Remy, M. — Poly. de Mons
Lepore, R. — S.A. Cimenteries CBR

Adams Ballroom A

FA16
Control of disk drive storage systems

Chair: Messner, William C. — Carnegie Mellon Univ.
Co-chair: Horowitz, Roberto — Univ. of California at Berkeley
Organizer: Messner, William C. — Carnegie Mellon Univ.
Co-organizer: Horowitz, Roberto — Univ. of California at Berkeley

10:00 (I) 3023
Optimal strain gauge placement for an instrumented disk drive suspension
Banther, Michael — Carnegie Mellon Univ.
Huang, Yuhong — Carnegie Mellon Univ.
Messner, William C. — Carnegie Mellon Univ.

10:20 (I) 3028
Closed-loop control of a microfabricated actuator for dual-stage hard disk drive servo systems
Horsley, David — Univ. of California at Berkeley
Hernandez, Daniel — Univ. of California at Berkeley
Horowitz, Roberto — Univ. of California at Berkeley
Packard, Andrew K. — Univ. of California at Berkeley
Pisano, Albert P. — Univ. of California at Berkeley

10:40 (I) 3033
Multi-rate controller for hard disk drives with redesign of state estimator
Hara, Takeyori — Fujitsu Ltd.
Tomizuka, Masayoshi — Univ. of California at Berkeley

11:00 (I) 3038
Multi-sensing servo with carriage acceleration feedback for magnetic disk drives
Kobayashi, Masahito — Hitachi, Ltd.
Yamaguchi, Takashi — Hitachi, Ltd.
Yoshida, Takashi — Hitachi, Ltd.
Hirai, Hiromu — Hitachi, Ltd.

11:20 (I) 3043
Customizable coherent servo demodulation for disk drives
Abramovitch, Daniel Y. — Hewlett-Packard Labs

11:40 (I) 3050
Servo performance prediction for high capacity disk drives
Lee, Ho-Seong — Maxtor Corp.
Guo, Lin — Maxtor Corp.

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FM01
Flexible structures

Chair: Pao, Lucy Y. — Univ. of Colorado
Co-chair: Calise, Anthony J. — Georgia Inst. of Tech.

13:30 3055
Hybrid control for vibration and acoustics
Clark, Robert L. — Duke Univ.
Bernstein, Dennis S. — Univ. of Michigan

13:50 3060
Dynamic modelling of a smart material robot
Ge, S. S. — National Univ. of Singapore
Lee, T. H. — National Univ. of Singapore
Gong, J. Q. — National Univ. of Singapore

14:10 3065
Model-free controllers of a single-link smart material robot
Gong, J. Q. — National Univ. of Singapore
Ge, S. S. — National Univ. of Singapore
Lee, T. H. — National Univ. of Singapore

14:30 3070
Input shaping designs to account for uncertainty in both frequency and damping in flexible structures
Pao, Lucy Y. — Univ. of Colorado
Lau, Mark A. — Univ. of Colorado

14:50 3072
An analysis and comparison of frequency-domain and time-domain input shaping
Pao, Lucy Y. — Univ. of Colorado
Cutforth, Craig — Univ. of Colorado

15:10 3075
Control of a tip-loaded flexible-link robot using shaped input command
Yang, H. — National Univ. of Singapore
Ang, Jr., M. H. — National Univ. of Singapore
Krishnan, Hariharan — National Univ. of Singapore

Gettysburg 3-4

FM02
Numerical methods I

Chair: Kwok, Kwan S. — Sandia National Labs.
Co-chair: Erwin, R. Scott — USAF Research Lab.

13:30 3077
A multi-objective dynamic programming approach to constrained discrete-time optimal control
Driessen, Brian J. — Sandia National Labs.
Kwok, Kwan S. — Sandia National Labs.

13:50 3084
Discretization of nonlinear models using a modified Carleman linearization technique
Al-Tuwaim, M. S. — Univ. of Florida
Crisalle, Oscar D. — Univ. of Florida
Svoronos, Spyros A. — Univ. of Florida

14:10 3089
Exploiting structure in a projective algorithm for solving strict linear matrix inequalities
Ge, Yuzhen — Butler Univ.
Watson, Layne T. — Virginia Poly. Inst. & State Univ.
Collins, Jr., Emmanuel G. — Florida A&M - Florida State

14:30 3091
Extended matrix pencils for the delta-operator Riccati equation
Erwin, R. Scott — USAF Research Lab.
Bernstein, Dennis S. — Univ. of Michigan

14:50 3096
An integrated procedure for fixed-point control implementation
Sureshbabu, Natarajan — Ford Research Lab.
Powell, Barry — Ford Research Lab.
Dunn, M. T. — Ford Research Lab.

15:10 3101
Computation of optimal feedback gains for time-varying LQ optimal control
Jaddu, Hussein — Japan Adv. Inst. of Sci. & Tech.
Shimemura, Etsujiro — Japan Adv. Inst. of Sci. & Tech.

Constitution Ballroom A

FM03
Large scale interconnected systems
Chair: Boussalis, H. — California State Univ.
Co-chair: Lipset, Robert — Ohio Univ.

13:30 3103
Maximizing tolerable disturbances in a coupled structural system using a QFT like method
Rhodes II, Q. Zane — Texas A&M Univ.
Jayasuriya, Suhada — Texas A&M Univ.

13:50 3106
Decentralized state feedback stabilization and robust control of uncertain large scale systems with integrally constrained interconnections
Ugrinovskii, Valery A. — Australian Defense Force Academy
Petersen, Ian R. — Australian Defense Force Academy
Savkin, Andrey V. — Univ. of Western Australia
Ugrinovskaya, E. Ya. — Nizhny Novgorod Arch. & Civil Eng. Acad.

14:10 3111
Decentralized robust H-infinity control of uncertain large-scale systems with state-delays: LMI approach
Cheng, Chu-Wang — China Textile Univ.
Tang, Bingyong — China Textile Univ.
Cao, Yong-Yan — Zhejiang Univ.
Sun, You-Xian — Zhejiang Univ.

14:30 3116
Robust decentralized stabilization for interconnected system with similar structure via output feedback
Chen, Bing — Northeastern Univ.
Jing, Yuanwei — Northeastern Univ.
Zhang, Si-Ying — Northeastern Univ.

14:50 3118
Toward linear complexity optimal control for sparsely interconnected dynamic systems
Driessen, Brian J. — Sandia National Labs.
Sadegh, Nader — Georgia Inst. of Tech.
Parker, Gordon G. — Michigan Tech. Univ.

15:10 3121
Consultation scheme based on serial distributed detection system
Al-Ibrahim, M. M. — Jordan Univ. of Science & Tech.
Al-Ababneh, N. K. — Jordan Univ. of Science & Tech.

Constitution Ballroom B

FM04
Robust control II
Chair: Istepanain, Robert H. — Univ. of Portsmouth
Co-chair: Belcastro, Christine — NASA Langley Research Ctr.

13:30 3124
Robust steady-state tracking for periodic systems
Zou, Liping — Iowa State Univ.
Khammash, Mustafa H. — Iowa State Univ.

13:50 3129
Robust controller synthesis for uncertain discrete-time periodic systems
Kapila, Vikram — Polytechnic Univ.
Haddad, Wassim M. — Georgia Inst. of Tech.

14:10 3131
Robust design of PID controllers including auto-tuning rules
Kristiansson, Birgitta — Chalmers Univ. of Tech.
Lennartson, Bengt — Chalmers Univ. of Tech.

14:30 3133
Robust passification and control of non-passive systems
Kelkar, Atul G. — Kansas State Univ.
Joshi, Suresh M. — NASA Langley Research Ctr.

14:50 3138
Searching for robust minimal-order compensators
Stengel, Robert F. — Princeton Univ.
Wang, Qian — Princeton Univ.

15:10 3143
High performance state feedback, robust, and output feedback stabilizing control - a systematic design algorithm
Tsui, Chia-Chi

Grand Ballroom E

FM05
State estimation
Chair: How, Jonathan P. — Stanford Univ.
Co-chair: Schmidt, Martin — Tech. Univ. of Darmstadt

13:30 3148
An estimation-based approach to the design of adaptive IIR filters
Sayyarrodsari, Bijan — Stanford Univ.
How, Jonathan P. — Stanford Univ.
Hassibi, Babak — Stanford Univ.
Carrier, Alain C. — Lockheed Martin

13:50 3153
Worst-case estimation of unknown sinusoids contained in corrupted measurement data
Biswas, Saroj K. — Temple Univ.
Subrahmanyam, M. Bala — Naval Air Warfare Center

14:10 3158
Improved disturbance estimation for dynamic matrix control
Lee, Jay H. — Auburn Univ.
Amirthalingam, Raja — Auburn Univ.
Lee, Yongho — Auburn Univ.
Lee, Kwang Soon — Sogang Univ.

14:30 3163
Robust PFI Kalman filters
Linder, Stephen Paul — Northeastern Univ.
Shafai, Bahram — Northeastern Univ.

14:50 3165
Multi-rate nonlinear state estimation in a polymerization reactor
Tatiraju, Srinivas — Drexel Univ.
Soroush, Masoud — Drexel Univ.
Ogunnaike, B. — E.I. du Pont de Nemours and Co.

15:10 3170
Structural analysis and partitioning of dynamic process models for parallel state estimation
Abdel-Jabbar, Nabil — Univ. of Michigan
Kravaris, Costas — Univ. of Michigan
Carnahan, Brice — Univ. of Michigan

Grand Ballroom F

FM06
Identification II
Chair: Tsao, Tsu-Chin — Univ. of Illinois at Urbana-Champaign
Co-chair: Palazoglu, Ahmet N. — Univ. of California at Davis

13:30 3177
On closed-loop identification with a tailor-made parametrization
De Bruyne, Franky — Australian National Univ.
Anderson, Brian D. O. — Australian National Univ.
Gevers, Michel — Univ. Catholique de Louvain
Linard, Natasha — Australian National Univ.

13:50 3182
RBFN identification of a solution copolymerization model
Bomberger, John D. — Univ. of California at Santa Barbara
Seborg, Dale E. — Univ. of California at Santa Barbara
Ogunnaike, B. — E.I. du Pont de Nemours and Co.

14:10 3189
Minmax and least squares multivariable transfer function curve fitting: error criteria, algorithms and comparisons
Bohn, Christian — Ruhr-Univ. of Bochum
Unbehauen, H. — Ruhr-Univ. of Bochum

14:30 3194
Resampling-based calculation of the information matrix for general identification problems
Spall, James C. — Johns Hopkins Univ.

14:50 3199
Closed loop relevant identification of input-output and noise dynamics
De Bruyne, Franky — Australian National Univ.

15:10 3204
Identification of the smallest unfalsified model set based on stochastic noisy data
Fukushima, Hiroaki — Kyoto Univ.
Sugie, Toshiharu — Kyoto Univ.

Grand Ballroom A

FM07
Stability II
Chair: Wu, N. Eva — Binghamton Univ.
Co-chair: Schumacher, Corey — Wright Lab.

13:30 3206
An extension of the generalized Hermite-Biehler theorem: relaxation of earlier assumptions
Ho, Ming-Tzu — Texas A&M Univ.
Datta, Aniruddha — Texas A&M Univ.
Bhattacharyya, Shankar P. — Texas A&M Univ.

13:50 3210
Notions of integral input-to-state stability
Sontag, Eduardo D. — Rutgers Univ.

14:10 3215
On impulse and continuous observation control design in Kalman filtering problem
Basin, Michael V. — Auto. Univ. of Nuevo Leon
Pinsky, Mark A. — Univ. of Nevada at Reno

14:30 3220
Bilinear system control with exponential stability
Chen, Min-Shin — National Taiwan Univ.

14:50 3224
Asymptotic stability of completely retarded time-varying linear systems
Deng, Fei-Qi — South China Univ. of Tech.
Liu, Yongqing — South China Univ. of Tech.
Feng, Zhaoshu — South China Univ. of Tech.

15:10 3226
Circle/Popov criteria in phaselock loop design
Wu, N. Eva — Binghamton Univ.

Grand Ballroom B

FM08
Multiobjective control
Chair: Feron, Eric — Massachusetts Inst. of Tech.
Co-chair: Sznaier, Mario — Pennsylvania State Univ.

13:30 3229
H2 control with time domain constraints
Sznaier, Mario — Pennsylvania State Univ.
Amishima, Takeshi — Pennsylvania State Univ.

13:50 3234
Performance limitations for unstable SISO plants
Havre, Kjetil — Norwegian Univ. of Science & Tech.
Skogestad, Sigurd — Norwegian Univ. of Science & Tech.

14:10 3239
Design of optimal mixed H2/H-infinity static state feedback controllers
Halder, Bijit — Stanford Univ.
Hassibi, Babak — Stanford Univ.
Kailath, Thomas — Stanford Univ.

14:30 3244
Multiobjective H2/H-infinity optimal control via finite dimensional Q-parametrization and linear matrix inequalities
Hindi, Haitham — Stanford Univ.
Hassibi, Babak — Stanford Univ.
Boyd, Stephen P. — Stanford Univ.

14:50 3250
Multiobjective L1/H-infinity controller design for systems with frequency and time domain constraints
Haddad, Wassim M. — Georgia Inst. of Tech.
Chellaboina, Vijaya S. — Georgia Inst. of Tech.
Kumar, Rohit — Stanford Univ.

15:10 3255
Fixed-order dynamic compensation for linear systems with actuator amplitude and rate saturation constraints
Chellaboina, Vijaya S. — Georgia Inst. of Tech.
Haddad, Wassim M. — Georgia Inst. of Tech.

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FM09
Model predictive control
Chair: Muske, Kenneth R. — Villanova Univ.
Co-chair: Grimble, Michael John — Univ. of Strathclyde

13:30 3261
Model predictive control for uncertain systems
Chai, Li — Zhejiang Univ.
Sun, You-Xian — Zhejiang Univ.
Cao, Yong-Yan — Univ. of Hong Kong

13:50 3266
Frequency domain robust control design with predictive control action
Grimble, Michael John — Univ. of Strathclyde

14:10 3271
Global predictive stabilization of input-saturated linear systems
Casavola, Alessandro — Univ. of Florence
Giannelli, Monica — Univ. of Florence
Mosca, Edoardo — Univ. of Florence

14:30 3276
On receding horizon extensions and control Lyapunov functions
Primbs, James A. — California Inst. of Tech.
Nevistic, Vesna — ETH Swiss Fed. Inst. of Tech.
Doyle, John C. — California Inst. of Tech.

14:50 3281
A computationally efficient constrained predictive control law
Rossiter, J. Anthony — Loughborough Univ.
Rice, M. J. — Loughborough Univ.
Schuurmans, J. — Loughborough Univ.
Kouvaritakis, Basil — Oxford Univ.

15:10 3286
Predictive and time delay control of transmission mechanisms
Chen, Cheng-Yi — National Sun Yat-Sen Univ.
Cheng, Chi-Cheng — National Sun Yat-Sen Univ.
Chiu, George T.-C. — Purdue Univ.

Delaware 2

FM10
Model-based fault condition monitoring
Chair: Polycarpou, Marios M. — Univ. of Cincinnati
Co-chair: Repperger, D. — Wright Patterson Air Force Base

13:30 3291
Fault detection and diagnosis for rotating machinery: a model-based approach
Abdel-Magied, M. F. — Case Western Reserve Univ.
Loparo, Kenneth — Case Western Reserve Univ.
Lin, Wei — Case Western Reserve Univ.

13:50 3297
Electric fault detection for vector-controlled induction motors using the discrete wavelet transform
Chen, Chao-Ming — Case Western Reserve Univ.
Loparo, Kenneth — Case Western Reserve Univ.

14:10 3302
Fault detection for systems with multirate sampling
Fadali, Mohammed Sami — Univ. of Nevada
Liu, W. — Univ. of Nevada

14:30 3307
Robust detection and isolation of mechanical faults in processes driven by induction machines
Zell, Caj — Lulea Univ. of Tech.
Medvedev, Alexander V. — Lulea Univ. of Tech.

14:50 3312
The application of kernel density estimates to condition monitoring for process industries
Chen, Qian — Sheffield Hallam Univ.
Goulding, P. — Manchester Univ.
Sandoz, D. — Manchester Univ.
Wynne, Richard J. — Sheffield Hallam Univ.

15:10 3317
Damage mitigating control of a reusable rocket engine for structural durability
Holmes, Michael Scott — Pennsylvania State Univ.
Patankar, Ravindra — Pennsylvania State Univ.
Ray, Asok — Pennsylvania State Univ.
Tangirala, Sekhar — Pennsylvania State Univ.

Delaware 3

FM11
Tracking control systems
Chair: Isaksson, Alf — Royal Inst. of Tech.
Co-chair: Krogh, Bruce H. — Carnegie Mellon Univ.

13:30 3322
Acceleration feedback of tracking control based on real time Fourier series
Tang, Xiaoqi — Hong Kong Univ. of Science & Tech.
Cai, Lilong — Hong Kong Univ. of Science & Tech.
Huang, Weiqing — Hong Kong Univ. of Science & Tech.

13:50 3327
Linear discrete-event systems and robust servomechanism problem
Iftar, Altug — Anadolu Univ.

14:10 3332
Improved tracking under zero preview information for SISO systems
Bement, Matt — Texas A&M Univ.
Jayasuriya, Suhada — Texas A&M Univ.

14:30 3334
Comparison of suboptimal strategies for optimal own-ship maneuvers in bearings-only tracking
Logothetis, Andrew — Royal Inst. of Tech.
Isaksson, Alf — Royal Inst. of Tech.
Evans, Robin J. — Univ. of Melbourne

14:50 3339
Design of time delay controller based on variable reference model
Song, Jae-Bok — Korea Univ.
Byeon, Kyeong-Seok — Korea Univ.

15:10 *
Withdrawn

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FM12
Nonlinear systems I
Chair: Jankovic, Mrdjan — Ford Research Labs
Co-chair: Gray, W. Steven — Old Dominion Univ.

13:30 3344
State realization of nonlinear systems described by input-output difference equations
Sadegh, Nader — Georgia Inst. of Tech.

13:50 3349
Sufficient conditions for minimality of a nonlinear realization via controllability and observability functions
Scherpen, Jacquelien M. A. — Delft Univ. of Tech.
Gray, W. Steven — Old Dominion Univ.

14:10 3354
Simplification of nonlinear controllers: balancing approaches
Min, Hong — Drexel Univ.
Yousuff, Ajmal — Drexel Univ.

14:30 3359
Robust stabilization of nonminimum phase nonlinear systems
Jo, Nam H. — Seoul National Univ.
Byun, Jijoon — Seoul National Univ.
Shim, H. — Seoul National Univ.
Seo, Jin H. — Seoul National Univ.

14:50 3364
The construction of the set of stable states for constrained systems with open-loop unstable plants
McNamee, Joe — Air Force Inst. of Tech.
Pachter, Meir — Air Force Inst. of Tech.

15:10 3369
Stabilizing decomposition of interval nonlinear interconnected discrete control systems with nonintegral-delays
Zhang, Xinzheng — South China Univ. of Tech.
Liu, Yongqing — South China Univ. of Tech.

Jefferson

FM13
Monitoring and control of polymerization processes I
Chair: Soroush, Masoud — Drexel Univ.
Co-chair: Congalidis, J. — DuPont Central Res. & Dev.
Co-chair: Richards, J. — DuPont Central Res. & Dev.
Organizer: Bequette, B. Wayne — Rensselaer Polytechnic Inst.

13:30 (I) 3371
Optimization of molecular weight distribution using batch-to-batch adjustments
Clarke-Pringle, T. — McMaster Univ.
MacGregor, J. F. — McMaster Univ.

13:50 (I) 3376
Model-based control of injection pultrusion process
Voorakaranam, Srikanth — Washington Univ.
Kardos, John L. — Washington Univ.
Joseph, Babu — Washington Univ.

14:10 (I) 3381
Nonlinear model predictive control of a batch polymerization process
Schei, Tor Steinar — SINTEF Electronics & Cybernetics
Singstad, Peter — SINTEF Electronics & Cybernetics

14:30 (I) •
Withdrawn

14:50 (I) 3386
Robust model predictive control of an industrial solid phase polymerizer
Krishnan, Arun — Univ. of South Carolina
Kosanovich, Karlene A. — Univ. of South Carolina
DeWitt, Marion R. — Dupont Chemical Co.
Creech, Michael B. — Dupont Chemical Co.

15:10 (I) 3391
Artificial neural network feedforward/feedback control of a batch polymerization reactor
Shahrokhi, Mohammed — Sharif Univ. of Tech.
Pishvaie, Mahmoud Reza — Sharif Univ. of Tech.

Franklin 1

FM14
Control and identification of power systems II
Chair: Nwankpa, Chika O. — Drexel Univ.
Co-chair: Lyshevski, Sergey — Purdue Univ. at Indianapolis

13:30 3396
Capacitor switching transients prediction in noisy environments
Sochuliakova, D. — Drexel Univ.
Niebur, Dagmar — Drexel Univ.
Nwankpa, Chika O. — Drexel Univ.
Fischl, Robert — Drexel Univ.
Richardson, D. — Electric Power Research Inst.

13:50 3398
Subspace based identification of power transformer models from frequency response data
Akcay, Huseyin — Tubitak Marmara Research Centre
Islam, Syed M. — Curtin Univ. of Tech.
Ninness, Brett M. — Univ. of Newcastle

14:10 3403
A hybrid robust power system control design combining system identification and genetic algorithms
Tito, Flavia L. — Instituto Militar de Engenharia
Taranto, Glauco N. — Fed. Univ. Rio de Janeiro
Pellanda, Paulo C. — Instituto Militar de Engenharia

14:30 3408
Nonlinear dynamics, control, and stability analysis of power systems
Lyshevski, Sergey — Purdue Univ. at Indianapolis
Yokomoto, Charles — Purdue Univ. at Indianapolis

14:50 3410
Dynamic optimal reactive power flow
Sharif, S. Salamat — Univ. of New Brunswick
Taylor, James H. — Univ. of New Brunswick

15:10 3415
Partially decentralized controller for damping interarea oscillations in power systems
Silva de Araujo, Clivaldo — Univ. Federal da Paraiba
Calazans de Castro, Jose — Univ. Federal da Paraiba

Franklin 2

FM15
Industrial applications II
Chair: Payette, Kevin — HiTech Control Systems Inc.
Co-chair: Martin, Elaine — Univ. of Newcastle Upon Tyne

13:30 3420
An application of distributed air conditioning control network
Cheng, Hung-Ming — Industrial Tech. Research Inst.
Chen, Cheng-Yi — National Sun Yat-Sen Univ.
Cheng, Chi-Cheng — National Sun Yat-Sen Univ.
Chiu, George T.-C. — Purdue Univ.

13:50 •
Withdrawn

14:10 3425
ER fluid dampers and their application in shock mitigation
Wu, Dong-Nan — Scientific Monitoring, Inc.
Jaw, Link C. — Scientific Monitoring, Inc.

14:30 3430
A modified index for control performance assessment
Horch, Alexander — Royal Inst. of Tech.
Isaksson, Alf J. — Royal Inst. of Tech.

14:50 •
Withdrawn

15:10 3435
State-space local model networks based continuous-time GPC: application to induction motor
Hentabli, K. Univ. de Picardie-Jules Verne

Adams Ballroom A

FM16
Control of high-rise high-speed elevators

Chair: Wang, Hua O. Duke Univ.
Co-chair: Niemann, David D. Duke Univ.
Organizer: Wang, Hua O. Duke Univ.
Co-organizer: Niemann, David D. Duke Univ.
Co-organizer: Roberts, Randy Otis Elevator Co.

13:30 (I) 3440
Control of high-rise/high-speed elevators
Roberts, Randy Otis Elevator Co.

13:50 (I) 3445
Robust tracking for high-rise/high-speed elevators
Li, Jing Duke Univ.
Niemann, David D. Duke Univ.
Wang, Hua O. Duke Univ.

14:10 (I) 3860
Identification and control of high-rise elevators
Venkatesh, S. R. United Technologies Research Ctr.
Cho, Y. M. United Technologies Research Ctr.

14:30 (I) 3450
Multi-objective fuzzy control of high-rise/ high-speed elevators using LMIs
Tanaka, Kazuo Kanazawa Univ.
Nishimura, Masataka Kanazawa Univ.
Wang, Hua O. Duke Univ.

14:50 (I) 3455
Trajectory generation of high-rise/high-speed elevators
Beldiman, Octavian Duke Univ.
Wang, Hua O. Duke Univ.
Bushnell, Linda G. US ARO

15:10 (I) 3870
Active control of a traveling medium with varying length
Ni, J. Stevens Inst. of Tech.
Zhu, W. D. Univ. of North Dakota
Huang, J. Chinese Univ. of Hong Kong

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FP01
Vibration control

Chair: Franchek, Matthew A. Purdue Univ.
Co-chair: Khorrami, Farshad Polytechnic Univ.

16:00 3460
Noncollocated adaptive-passive vibration control using self-tuning vibration absorbers
Buhr, Craig A. Purdue Univ.
Franchek, Matthew A. Purdue Univ.
Bernhard, Robert J. Purdue Univ.

16:20 3465
The design and implementation of robust strategies for active vibration control
Sadri, A. M. Univ. of Manchester
Wynne, Richard J. Sheffield Hallam Univ.
Wright, J. R. Univ. of Manchester

16:40 3470
Boundary control of the axially moving Kirchhoff string
Shahruz, Shahram M. Berkeley Eng. Research Inst.

17:00 3472
Boundary control for a general class of string models
Canbolat, H. Clemson Univ.
Dawson, Darren M. Clemson Univ.
Nagarkatti, S. Clemson Univ.
Costic, B. Clemson Univ.

17:20 3477
Experiments in two-axis vibration damping using inertial torques through momentum wheel control
Raab, Frank J. Montana Tech.
Trudnowski, Daniel J. Montana Tech.

17:40 3482
Vibrational control of underactuated mechanical systems: control design through the averaging analysis
Hong, Keum-Shik Pusan National Univ.
Lee, Kang-Ryeol Pusan National Univ.
Lee, Kyo-Il Seoul National Univ.

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FP02
Numerical methods II

Chair: Dorato, Peter Univ. of New Mexico
Co-chair: Boukas, El-Kebir King Fahd Univ. of Petro & Min.

16:00 3487
Robust solutions to l1, l2 and l-infinity uncertain linear approximation problems using convex optimization
Hindi, Haitham Stanford Univ.
Boyd, Stephen P. Stanford Univ.

16:20 3492
Some conditions which make the constantly scaled H-infinity control synthesis problems convex
Asai, Toru Univ. of California at Berkeley
Hara, Shinji Tokyo Inst. of Tech.

16:40 3497
Guaranteed gain-phase margins for multi-model control
Luke, Robert A. Univ. of New Mexico
Dorato, Peter Univ. of New Mexico
Abdallah, Chaouki T. Univ. of New Mexico

17:00 3502
Issues on the discrete implementation of frequency domain controller design
Linde, E. K. Purdue Univ.
Shin, Yung C. Purdue Univ.

17:20 3504
The simplex architecture for safe on-line control system upgrades
Seto, Danbing Carnegie Mellon Univ.
Krogh, Bruce H. Carnegie Mellon Univ.
Sha, L. Carnegie Mellon Univ.
Chutinan, A. Carnegie Mellon Univ.

17:40 3509
Applying 03CACSD to control system design and rapid prototyping
Qiu, Xiaobing ETH Swiss Fed. Inst. of Tech.
Schaufelberger, Walter ETH Swiss Fed. Inst. of Tech.
Wang, Jiannong ETH Swiss Fed. Inst. of Tech.
Sun, Youxian Zhejiang Univ.

Constitution Ballroom A

FP03
Multivariable control

Chair: Chen, Jie — Univ. of California at Riverside
Co-chair: Menemenlis, Nickie — McGill Univ.

16:00 — 3514
Multivariable controller tuning
Johansson, Karl Henrik — Lund Inst. of Tech.
James, Ben — Bank of America
Bryant, G. — Imperial College of Sci., Tech. & Med.
Astrom, Karl J. — Lund Inst. of Tech.

16:20 — 3519
Multiresolutional controller design
Clancy, Daniel J. — Ohio State Univ.
Ozguner, Umit — Ohio State Univ.

16:40 — 3524
Multivariable PID controller design based on the direct Nyquist array method
Ho, W. K. — National Univ. of Singapore
Xu, Wen — National Univ. of Singapore

17:00 — 3529
On logarithmic complementary sensitivity integrals for MIMO systems
Chen, Jie — Univ. of California at Riverside

17:20 — 3531
Simultaneously stabilizing controller design for a class of linear plants
Gundes, A. Nazli — Univ. of California at Davis
Kabuli, M. G. — Univ. of California at Davis

17:40 — 3533
A simultaneous observer-based controller
Fonte, Christophe — CRAN-CNRS
Zasadzinski, Michel — LARAL
Darouach, Mohamed — CRAN-CNRS

Constitution Ballroom B

FP04
Robust control III

Chair: Joshi, Suresh M. — NASA Langley Research Ctr.
Co-chair: Asada, Haruhiko — Massachusetts Inst. of Tech.

16:00 — *
Reliable and robust H-infinity control for state delayed systems
Yan, Yonghong — Northeastern Univ.
Zhang, Si-Ying — Northeastern Univ.

16:20 — 3538
An explicit formula for a robust controller for SISO systems with unknown delays
Olbrot, Andrzej W. — Wayne State Univ.

16:40 — 3540
Shaping structure dynamics with truncation error-bounded reduced-order models for integrated mechanism/control design
Savant, Shrikant — Massachusetts Inst. of Tech.
Asada, Haruhiko — Massachusetts Inst. of Tech.

17:00 — 3545
Piecewise-linear robust control of systems with input constraints
Henrion, Didier — LAAS-CNRS
Garcia, Germain — LAAS-CNRS
Tarbouriech, Sophie — LAAS-CNRS

17:20 — 3550
Robust control of a class of sampled-data systems against LTI uncertainties
Toivonen, Hannu T. — Abo Akademi Univ.
Sagfors, Mats F. — Abo Akademi Univ.

17:40 — 3555
Robust stability of a diamond of multivariate polynomials
Ramirez-Sosa Moran, Marco Ivan — CINVESTAV-IPN
Kharitonov, V. L. — CINVESTAV-IPN

Grand Ballroom E

FP05
Constrained state estimation

Chair: Spall, James C. — Johns Hopkins Univ.
Co-chair: Shafai, Bahram — Northeastern Univ.

16:00 — 3559
Rational basis functions for robust identification from frequency and time domain measurements
Akcay, Huseyin — Tubitak Marmara Research Centre
Ninness, Brett M. — Univ. of Newcastle

16:20 — 3564
Computing output prediction bounds using ellipsoidal parameter bounding
Maksarov, D. — Silsoe Research Institute
Chalabi, Z. S. — Silsoe Research Institute

16:40 — 3566
On the worst-case divergence of the least-squares algorithm
Akcay, Huseyin — Tubitak Marmara Research Centre
Ninness, Brett M. — Univ. of Newcastle

17:00 — 3570
The least squares: output error sensitivity and the constrained logarithmic algorithm
Bai, Er-Wei — Univ. of Iowa
Ye, Yinyu — Univ. of Iowa

17:20 — 3575
Optimal sensor configuration for complex systems
Sadegh, Payman — Tech. Univ. of Denmark
Spall, James C. — Johns Hopkins Univ.

17:40 — 3580
Set-valued nonlinear estimation using the Galerkin approximation
Kenney, John D. — Brigham Young Univ.
Beard, Randal W. — Brigham Young Univ.
Stirling, Wynn C. — Brigham Young Univ.

Grand Ballroom F

FP06
Parameter identification

Chair: Braatz, Richard D. — Univ. of Illinois at Urbana-Champaign
Co-chair: DeCarlo, Raymond A. — Purdue Univ.

16:00 — 3585
Parameter identification for an autonomous 11th order nonlinear model of a physiological process
Rundell, Ann E. — Purdue Univ.
DeCarlo, Raymond A. — Purdue Univ.
Doerschuk, P. — Purdue Univ.
HogenEsch, H. — Purdue Univ.

16:20 — 3590
Parameter subset identification by recursive least squares
Pizarro, O. — Univ. de Concepcion
Sbarbaro, Daniel G. H. — Univ. de Concepcion

16:40 3592
Modeling and parameter identification of ice-affected streamflow
Holtschlag, David J. U.S. Geological Survey
Grewal, M. S. California State Univ. at Fullerton

17:00 3597
Parametric identification of closed-loop linear systems using cyclic-spectral analysis
Tontiruttananon, Channarong Auburn Univ.
Tugnait, Jitendra K. Auburn Univ.

17:20 3602
Optimal state estimation and parameter identification of MIMO uncertain discrete stochastic linear systems
Rusnak, Ilan Rafael

17:40 3607
Parameter decoupling for transfer function identification during quasi-harmonic operation
Pearson, Allan E. Brown Univ.

Grand Ballroom A

FP07
Stability III
Chair: Megretski, Alexandre Massachusetts Inst. of Tech.
Co-chair: Gu, Guoxiang Louisiana State Univ.

16:00 3612
The Zames-Falb IQC for critically stable systems
Jonsson, Ulf T. Massachusetts Inst. of Tech.
Megretski, Alexandre Massachusetts Inst. of Tech.

16:20 3617
Bifurcation analysis and control for surge model via the projection method
Gu, Guoxiang Louisiana State Univ.
Sparks, Andrew G. Wright Lab.
Kang, Wei Naval Postgraduate School

16:40 3622
On the nonlinearly structured stability radius problem
Yan, Wei-Yong Nanyang Tech. Univ.
Lam, James Univ. of Hong Kong

17:00 3627
Practical stability of discrete event systems using Lyapunov methods
Retchkiman, Zvi Instituto Politecnico Nacional

17:20 3629
The development of anti-windup scheme and stick-slip compensator for time delay control
Chang, Pyung H. Korea Adv. Inst. of Sci. & Tech.
Park, Suk H. Korea Adv. Inst. of Sci. & Tech.

17:40 3634
An extended stability theorem for nonlinear systems subject to slowly varying exogenous signals
Wang, Yibing Tsinghua Univ.
Han, Zeng-Jin Tsinghua Univ.

Grand Ballroom B

FP08
Switching control systems
Chair: Samad, Tariq Honeywell Tech. Center
Co-chair: Huzmezan, Mihai Cambridge Univ.

16:00 3639
On the use of switched linear controllers for stabilizability of implicit recursive equations
Nesic, Dragan Univ. of California at Santa Barbara
Skafidas, E. Univ. of Melbourne
Mareels, Iven Univ. of Melbourne
Evans, Robin J. Univ. of Melbourne

16:20 3644
Robust adaptive stabilization with multiple H-infinity uncertainty models and switching
Rangan, Sundeep Univ. of California at Berkeley
Poolla, Kameshwar Univ. of California at Berkeley

16:40 3649
Reconfiguration and scheduling in flight using quasi-LPV high-fidelity models and MBPC control
Huzmezan, Mihai Cambridge Univ.
Maciejowski, Jan M. Cambridge Univ.

17:00 3654
Harmonic analysis of nonlinear and uncertain systems
Rantzer, Anders Lund Inst. of Tech.
Megretski, Alexandre Massachusetts Inst. of Tech.

17:20 3659
Quadratic stabilization and control of piecewise-linear systems
Hassibi, Arash Stanford Univ.
Boyd, Stephen P. Stanford Univ.

17:40 3665
Robust switching missile autopilot
Brugarolas, Paul B. Univ. of Southern California
Fromion, Vincent Univ. di Roma
Safonov, Michael G. Univ. of Southern California

Delaware 1

FP09
Internal model control
Chair: Zhang, Yu National Univ. of Singapore
Co-chair: Yamada, Kou Yamagata Univ.

16:00 3670
A modified internal model control scheme with simplified design and implementation
Wang, Qing-Guo National Univ. of Singapore
Zhang, Yu National Univ. of Singapore
Zhang, Yong National Univ. of Singapore

16:20 3672
Decoupling internal model control for multivariable systems with multiple time delays
Wang, Qing-Guo National Univ. of Singapore
Zhang, Yu National Univ. of Singapore
Chiu, Min-Sen National Univ. of Singapore

16:40 3677
The theory and design of adaptive internal model control schemes
Datta, Aniruddha Texas A&M Univ.
Xing, Lei Texas A&M Univ.

17:00 3685
Robust internal model servo control with control input saturation
Yamada, Kou Yamagata Univ.

17:20 3687
Robust run-to-run control for semiconductor manufacturing: an internal model control approach
Adivikolanu, Sudhakar Univ. of Maryland
Zafiriou, Evanghelos Univ. of Maryland

17:40 3692
Reference governors and predictive control
Rossiter, J. Anthony — Loughborough Univ.
Kouvaritakis, Basil — Oxford Univ.

Delaware 2

FP10
Discrete-time and multirate control
Chair: Sadegh, Nader — Georgia Inst. of Tech.
Co-chair: Kwok, Kwan S. — Sandia National Labs.

16:00 3694
A new proof of the Jury test
Keel, Lee H. — Tennessee State Univ.
Bhattacharyya, Shankar P. — Texas A&M Univ.

16:20 3699
Nonlinear discrete-time systems: constrained optimization and application of nonquadratic costs
Lyshevski, Sergey — Purdue Univ. at Indianapolis

16:40 3704
Optimal hold functions for MDCS sampled-data problems
Mirkin, Leonid — Technion-Israel Inst. of Tech.
Palmor, Zalman J. — Technion-Israel Inst. of Tech.

17:00 3709
Stability analysis of a class of nonlinear multirate digital control systems
Hu, Bo — Univ. of Notre Dame
Michel, Anthony N. — Univ. of Notre Dame

17:20 3714
Lp analysis of nonsynchronous multirate sampled-data systems: continuity property and robustness
Ito, Hiroshi — Kyushu Inst. of Tech.

17:40 3719
Multimodel robust control by fast output sampling - an LMI approach
Werner, Herbert — Ruhr-Univ. of Bochum

Delaware 3

FP11
Time-varying systems
Chair: Misra, Pradeep — Wright State Univ.
Co-chair: Chen, Min-Shin — National Taiwan Univ.

16:00 3724
Robust adaptive control for discrete time-varying systems
Yin, Bin — Southeast Univ.
Feng, Chun-Bo — Southeast Univ.

16:20 3726
Controller design for linear time varying systems by backstepping
Yu, Xinghuo — Central Queensland Univ.
Wu, Yu-Qiang — Qufu Normal Univ.
Chu, Xuedao — Qufu Normal Univ.

16:40 3728
Positively invariant set of RFDE with applications to linear systems with time-varying input delays
Hou, Chunhai — Zhejiang Univ.
Qian, Jixin — Zhejiang Univ.

17:00 3730
Robust memoryless H-infinity control for uncertain linear time-delay systems
Su, Hongye — Zhejiang Univ.
Wang, Jingcheng — Zhejiang Univ.
Chu, Jian — Zhejiang Univ.

17:20 3732
Generalized hold function design for periodically time-varying systems
Chen, Min-Shin — National Taiwan Univ.

17:40 3737
Input-output block decoupling of linear time-varying singular systems
Wang, Xiaohua — Northeastern Univ.
Liu, Xiaoping — Northeastern Univ.
Jing, Yuanwei — Northeastern Univ.

Delaware 4

FP12
Nonlinear systems II
Chair: Yousuff, Ajmal — Drexel Univ.
Co-chair: Berg, Jordan M. — Texas Tech. Univ.

16:00 3742
A practical algorithm for designing nonlinear H-infinity control laws
Beard, Randal W. — Brigham Young Univ.
McLain, Timothy W. — Brigham Young Univ.

16:20 3744
A computational issue in nonlinear H-infinity control
Hu, S. S. — Drexel Univ.
Yang, Pao-Hwa — Combined Service Forces
Chang, Bor-Chin — Drexel Univ.

16:40 3746
Design and performance analysis of a direct adaptive controller for feedback linearizable systems
Zhang, T. — National Univ. of Singapore
Ge, S. S. — National Univ. of Singapore
Hang, Chang Chieh — National Univ. of Singapore

17:00 3751
Cascaded synchronization of two pendula
Loria, Antonio — Univ. of California at Santa Barbara
Nijmeijer, Hendrik — Univ. of Twente
Egeland, Olav — Norwegian Univ. of Science & Tech.

17:20 3753
A state observer for minimum phase nonlinear systems
Jo, Nam H. — Seoul National Univ.
Seo, Jin H. — Seoul National Univ.

17:40 3758
On parameter estimation using level sets
Berg, Jordan M. — Texas Tech. Univ.

Jefferson

FP13
Monitoring and control of polymerization processes II
Chair: Soroush, Masoud — Drexel Univ.
Co-chair: Richards, J. — DuPont Central Res. & Dev.
Co-chair: Congalidis, J. — DuPont Central Res. & Dev.
Organizer: Bequette, B. Wayne — Rensselaer Polytechnic Inst.

16:00 (I) 3763
Modeling and estimation for a terpolymerization reactor
Amrani, S. H. — Telemark College
Haavik, Arve Idar — Telemark College
Lie, B. — Telemark College
Karjala, Thomas W. — Dow Chemical Co.

16:20 (I) 3768
An adaptive calorimetric measurement strategy for on-line monitoring of conversion in polymerization processes
Fevotte, G. — Univ. Claude Bernard Lyon 1

16:40 (I) 3773
Monitoring and fault diagnosis of a polymerization reactor by interfacing knowledge-based and multivariate SPM tools
Norvilas, Aras — Illinois Inst. of Tech.
Tatara, Eric — Illinois Inst. of Tech.
Negiz, Antoine — Illinois Inst. of Tech.
DeCicco, Jeffrey — Illinois Inst. of Tech.
Cinar, Ali — Illinois Inst. of Tech.

17:00 (I) 3778
Nonlinear model predictive control with state estimation in batch polymerization
Berber, Ridvan — Univ. of Ankara
Yetik, K. — Univ. of Ankara
Calimli, A. — Univ. of Ankara

17:20 (I) 3865
Study on the estimation and control of a liquid composite molding process
Sourlas, Dennis D. — Univ. of Missouri-Rolla
Naha, Susmito — Univ. of Missouri-Rolla
Patterson, Gary — Univ. of Missouri-Rolla
Parnas, Richard — National Inst. of Standards & Tech.

17:40 (I) 3783
A comparative investigation on the heat-release estimation methods for temperature control of a batch polymerization reactor
Nik-Azar, M. — Amir Kabir Univ. of Tech.
Hormozi, F. — Azad Univ.
Parvazi-Nia, M. — Polymer Research Center of Iran

Franklin 1

FP14
Motor and generator control
Chair: DeMarco, Christopher L — Univ. of Wisconsin-Madison
Co-chair: Taranto, Glauco N. — Fed. Univ. Rio de Janeiro

16:00 3788
Speed sensorless observer for an induction machine with separate bias estimation
Pappano, Vincenzo — New Jersey Inst. of Tech.
Friedland, Bernard — New Jersey Inst. of Tech.

16:20 3791
A reduced order time-delay control for highly simplified brushless DC motor
Chang, Pyung H. — Korea Adv. Inst. of Sci. & Tech.
Lee, Jung H. — Missile Actuation System Div., ADD
Park, Suk H. — Korea Adv. Inst. of Sci. & Tech.

16:40 3796
Designing a passivity-based controller for the boost converter using bond graphs
Garcia-Gomez, Janette — Univ. Simon Bolivar
Rimaux, Stephane — A.D.E.R.S.A.
Delgado, Marisol — Univ. Simon Bolivar

17:00 3798
On the robust control of synchronous generators
Lahdhiri, Tarek — Univ. of Windsor
Alouani, Ali T. — Tennessee Tech. Univ.

17:20 3891
Multilevel linguistic equation controller applied to a 1 MW solar power plant
Juuso, E. K. — Univ. of Oulu
Balsa, P. — Plataforma Solar de Almeria
Valenzuela, L. — Plataforma Solar de Almeria

17:40 3803
Modern robust control of a CSI-fed induction motor drive system
Mohamed, Abdelfatah M. — Assiut Univ.

Franklin 2

FP15
Steel industry applications
Chair: Hansen, Glen — Los Alamos National Lab.
Co-chair: Moore, Kevin L. — Idaho State Univ.

16:00 3809
Blast furnace stove control
Muske, Kenneth R. — Villanova Univ.
Hansen, Glen — Los Alamos National Lab.
Howse, James — Los Alamos National Lab.
Cagliostro, Dominic — Los Alamos National Lab.
Chaubal, Pinakin — Inland Steel Industries, Inc.

16:20 3811
On the reheat furnace control problem
Pedersen, Lars Malcolm — The Danish Steel Works Ltd.
Wittenmark, Bjorn — Lund Inst. of Tech.

16:40 3816
Experimental control of a cupola furnace
Moore, Kevin L. — Idaho State Univ.
Abdelrahman, Mohamed A. — Tennessee Tech. Univ.
Larsen, Eric — Lockheed Martin Idaho Tech. Co.
Clark, Denis — Lockheed Martin Idaho Tech. Co.
King, Paul — U.S. Department of Energy

17:00 3822
Multi-dimensional size control in rod bar rolling and cold strip rolling by using fuzzy method
Ogai, Harutoshi — Nippon Steel Corp.
Fujii, Akira — Nippon Steel Corp.
Baba, Kanji — Nippon Steel Corp.
Kakimoto, Sumitada — Nippon Steel Corp.
Harakawa, Tetumi — Nippon Steel Corp.

17:20 3824
A real-time expert system with GPC for cold strip mill
Xue, Anke — Zhejiang Univ.
Sun, You-Xian — Zhejiang Univ.

17:40 3828
A new method of flatness control in cold rolling process
Qiao, Jun-Fei — Northeastern Univ.
Guo, Ge — Northeastern Univ.
Chai, Tianyou — Northeastern Univ.
Shao, Cheng — Northeastern Univ.

Adams Ballroom A

FP16

Coordinated control

Chair: Li, Perry Y. — Univ. of Minnesota
Co-chair: Chiu, George T.-C. — Purdue Univ.
Organizer: Li, Perry Y. — Univ. of Minnesota
Co-organizer: Chiu, George T.-C. — Purdue Univ.

16:00 (I) 3833
Contour tracking of machine tool feed drive systems
Chiu, George T.-C. — Purdue Univ.

16:20 (I) 3838
Passive control of bilateral teleoperated manipulators
Li, Perry Y. — Univ. of Minnesota

16:40 (I) 3843
A general framework of coordinated motion control subjected to actuator saturation
Niu, Weiguang — Univ. of California at Berkeley
Tomizuka, Masayoshi — Univ. of California at Berkeley

17:00 (I) 3848
Analysis and control of a class of large-scale interconnected nonlinear systems
Pagilla, Prabhakar R. — Oklahoma State Univ.

17:20 (I) 3853
Stick-slip operation of the modular distributed manipulator system
Luntz, Jonathan — Carnegie Mellon Univ.
Messner, William C. — Carnegie Mellon Univ.
Choset, Howie — Carnegie Mellon Univ.

17:40 (I)
Discussion
Li, Perry Y. — Univ. of Minnesota