

FAST FACTS

Registration Hours:	Sunday, Jan 8	1:00 pm – 5:00 pm	Heritage Hall
	Monday, Jan 9	7:30 am – 5:00 pm	Heritage Hall
	Tuesday, Jan 10	7:30 am – 5:00 pm	Heritage Hall

The registration desk will be staffed during the conference presentation times. The on-site coordinator, Robin Craven will be available to answer questions throughout the conference. The registration desk telephone number is 403-522-1523.

Location of Meetings

All **CPC 7** conference activities are in the Mt. Temple wing of the Fairmont Chateau Lake Louise Hotel. The general session will be in the **Mt. Temple Ballroom**. The poster session on Thursday will be in the Heritage Hall and Alpine Gallery which is located directly outside the Mt. Temple Ballroom.

Restaurants

Fairmont Chateau Lake Louise Hotel has several eating establishments.

- Poppy Brasserie
Mon: 4:30 pm – 9:00 pm
Tue: 5:00 pm – 9:00 pm
Wed: 5:00 pm – 9:00 pm
- The Walliser Stube
6:00 pm – 9:00 pm
- Glacier Saloon
6:00 pm – midnight
- Lobby Bar/Lakeview Lounge
12:00 noon – 9:00 pm
- Chateau Deli
24 hours

You can call the Food & Beverage office (Ext 1807) on property for assistance in checking availability and making reservations.

In addition to the above restaurants, the Fairmont Chateau offers In-Room dining from 7:00 pm to midnight.

Concierge

The Fairmont Chateau Lake Louise has a concierge available to assist with local activities and questions from 8:00 am to 8:00 pm. The phone number on the property is 1601.

Outdoor Activities

The Lake Louise/Banff area offers many wonderful outdoor activities including, but not limited to: downhill skiing, cross-country skiing, cave tours, snowmobile rides, sleigh rides, dog sledding, airplane and helicopter tours. The Fairmont concierge has information on all of these activities and more and can help you with all of your questions and reservations.

Local Transportation

To Banff: There is a bus that departs the Fairmont Chateau Lake Louise for Banff (enroute to the Calgary International Airport) at 6:45 am & 10:45 am every day. The bus departs the Banff Bus Depot for Lake Louise (enroute from Calgary Airport) daily 3:15 pm and 9:00 pm.

Cost: \$14.00 per person - tickets can be booked at hotel concierge with a credit card.

To Lake Louise Ski Resort: There is a Gray Line bus that provides *complimentary* transportation to the Ski Louise ski area. It departs the hotel on the hour and half-hour starting at 8:00 am until 3:00 pm. The bus departs Ski Louise on the half-hour starting at 8:30 am - last bus to hotel at 5:00 pm.

Mail, Fax and Telephone Service

The address participants may use for shipping and overnight mail is:

Robin Craven/Your Name
CPC7 Conference
C/O Fairmont Chateau Lake Louise
111 Lake Louise Drive
Lake Louise AB
Canada T0L 1E0

All guest mail will be delivered to and held at the Front Desk/Royal Service.

Fairmont Chateau Lake Louise has a \$1.65 CDN access charge for all calls. To lessen the cost for long distance calls, it is recommended that you use a telephone credit card. The resort's long distance carrier Telus Communications, Alberta.

The **incoming fax number for guest faxes is (403) 522-3834** and is located at the Front Desk. The charges for incoming faxes are:

Complimentary for pages 1 - 10; then \$1.00 per page after

For outgoing *domestic* faxes, **Relizon Business Centre** located on the lower floor in the Mt. Temple wing is the best option. The charges for outgoing faxes are: *Within Canada*: \$2.00 per page, *US*: \$2.40 per page and for *international*, \$4.00 per page. Their hours are 7:30am – 4:30 pm Monday – Friday.

After hours outgoing faxes can be accommodated at the concierge and/or front desk; charges are: complimentary for domestic faxes and \$3.00 per page for international.

Welcome Reception

The conference will have a welcoming reception on Sunday evening from 5:00 pm – 6:30 pm at the Victoria Room. All conference attendees and pre-paid guests are invited. A beer and wine bar (with soft drinks) will be available. *Each attendee and pre-paid guests will receive drink tickets with your name badge.* The drink tickets are for beer and wine only. Non-alcoholic beverages are free. The drink tickets can be used only at the CPC 7 conference events – reception, hospitalities and/or poster session. They cannot be used in the hotel restaurants or lounges.

Meals and Breaks

In addition to the meals below, the conference fee includes the reception on Sunday, coffee breaks and refreshments at the hospitalities.

Lunch	Thursday	12:00 pm – 2:00 pm	Heritage Hall
Banquet	Thursday	5:30 pm – 9:00 pm	See below

Lunch on Thursday is for all paid conference attendees (sorry, no guests). The reception and banquet is for all conference attendees and pre-paid guests. Additional information regarding the Thursday evening banquet is listed later.

Hospitalities

To stimulate informal discussions on Monday through Wednesday evenings, a hospitality suite will be available. Wine, beer, snacks and non-alcoholic beverages will be available. Drink tickets can be used for beer and wine.

Monday	9:00 pm – 10:30 pm	Sun Room
Tuesday	9:00 pm – 10:30 pm	Sun Room
Wednesday	9:00 pm – 10:30 pm	Larch Lounge

Conference Banquet

The conference banquet for attendees and pre-paid guest will be held on Thursday evening from 5:30 pm to 9:00 pm. It will be a festive and informal gathering at Ski Louise Mountain Resort. There will be a reception starting at 5:30 pm followed by dinner. Banquet tickets for guests are NOT available as they needed to be purchased with the attendees' registration.

At the reception, a complimentary beer and wine bar (with soft drinks) will be available. *At dinner, the bar will turn into a cash bar for beer and wine only.* Non-alcoholic beverages will remain complimentary.

At the banquet, wine, coffee and non-alcoholic beverages will be provided with dinner.

Dress is business casual.

Poster Session

The poster activity will be held in one session on Thursday, January 12 from 12:00 pm to 2:00 pm in the Heritage Hall/Alpine Gallery. Individuals presenting their poster can put the poster up on Thursday morning after 11:00 am. Posters must be removed immediately after the session. Posters not removed will not be returned. Push pins will be provided.

During the poster session, a deli lunch will be served. A beer and wine bar will also be available; you may use your drinks tickets or purchase beer and wine.

Vendor Activity

There will be two times set aside for vendors to display their software.

- Wednesday – 1:00 pm to 3:00 pm – Heritage Hall (beverages provided)
- Thursday – 12:00 pm to 2:00 pm – Heritage Hall (with Poster Session)

Internet Access

Internet access will not be provided in the meeting rooms. However, the Fairmont does have high-speed, internet access for a daily rate of \$10.00 CDN. Please note that this is a special conference rate and that the discount will be applied at check-out.

Tax Rebate

Canada has a Goods and Services Tax (GST) of 7%. Upon arrival at the front desk, you can obtain an application at check-in to have the GST tax rebated. Please ask the staff at check-in for the GST rebate form.

Chemical Process Control – CPC 7

January 8 – 13, 2006 ♦ Fairmont Chateau Lake Louise ♦ Alberta, Canada

FINAL AGENDA

All general session meetings will be in the Mt. Temple Ballroom

* Represents presenters
[] Represents Paper ID

Sunday, January 8

- 1:00 p.m. to 5:00 p.m. Conference Registration (Heritage Hall)
- 5:00 p.m. to 6:30 p.m. **Welcome Reception** (Victoria Room)
- 6:30 p.m. to 6:45 p.m. **Introductory Remarks**
Conference Chairs: *Mike Henson (University of Massachusetts)* and *Tom Badgwell (Aspen Technology)*
- 6:45 p.m. to 10:00 p.m. **General Session – Process Control Theory**
Session Chair: *Sirish Shah (University of Alberta)*
- 6:45 p.m. to 7:30 p.m. Control in an Information-Rich World: Future Directions in Control, Dynamics and Systems – *Richard Murray (California Institute of Technology)* [51]
- 7:30 p.m. to 8:15 p.m. Polynomial Control Systems: Analysis and Design via Dissipation Inequalities – *Christian Ebenbauer and Frank Allgöwer** (*University of Stuttgart*) [68]
- 8:15 p.m. to 8:30 p.m. Refreshment Break
- 8:30 p.m. to 9:15 p.m. Recent Developments in the Control of Constrained Hybrid Systems – *Manfred Morari** and *Miroslav Barić (Swiss Federal Institute of Technology)* [69]
- 9:15 p.m. to 10:00 p.m. Approximate Dynamic Programming Based Approach to Process Control and Scheduling – *Jay Lee** (*Georgia Institute of Technology*) and *Jong Min Lee (University of Virginia)* [59]

Monday, January 9

- 7:30 a.m. to 5:00 p.m. Conference Registration (Heritage Hall)
7:30 a.m. to 8:30 a.m. Continental Breakfast (complimentary – Heritage Hall)
- 8:30 a.m. to 12:00 p.m. General Session – Process Control Applications**
Session Chair: *Martin Pottmann (DuPont)*
- 8:30 a.m. to 9:10 a.m. Model Predictive Control – Building a Bridge Between Theory and Practice – *Brian Froisy (Aspen Technology)* [48]
- 9:10 a.m. to 9:50 a.m. Air Separation Control Technology – *David Vinson (Air Products and Chemicals)* [67]
- 9:50 a.m. to 10:10 a.m. Refreshment Break
- 10:10 a.m. to 10:50 a.m. Measurement and Control of Polymerization Reactors – *John Richards* and John Congalidis* (DuPont)* [50]
- 10:50 a.m. to 11:30 a.m. Bioprocess Control: Advances and Challenges – *Joseph Alford (Eli Lilly and Co.)* [39]
- 11:30 a.m. to 12:00 p.m. Panel Discussion
- 12:00 p.m. to 5:45 p.m. Free Afternoon**
- 5:45 p.m. to 9:00 p.m. General Session – Multiscale Systems**
Session Chair: *Fraser Forbes (University of Alberta)*
- 5:45 p.m. to 6:30 p.m. A Systems-Based Approach to Multiscale Computation: Equation-Free Detection of Coarse-Grained Bifurcations – *Constantinos Siettos (National Technical University of Athens), R. Rico-Martinez (Instituto Tecnológico de Celaya, Mexico) and Yannis Kevrekidis* (Princeton University)* [63]
- 6:30 p.m. to 7:15 p.m. An Extended Kalman Filter for *In-Situ* Sensing of Yttria-Stabilized Zirconia in Chemical Vapor Deposition – *Rentian Xiong, Paul Wissmann and Martha Gallivan* (Georgia Institute of Technology)* [44]
- 7:15 p.m. to 7:30 p.m. Refreshment Break
- 7:30 p.m. to 8:15 p.m. A Multiscale Systems Approach to Microelectronic Processes – *Richard Braatz*, Richard Alkire and Edmund Seebauer (University of Illinois at Urbana-Champaign)* [55]
- 8:15 p.m. to 9:00 p.m. Control and Optimization of Multiscale Process Systems – *Panagiotis Christofides* (University of California – Los Angeles) and Antonios Armaou (Pennsylvania State University)* [37]
- 9:00 p.m. to 10:30 p.m. Hospitality (Sun Room)

Tuesday, January 10

- 7:30 a.m. to 5:00 p.m. Conference Registration (Heritage Hall)
7:30 a.m. to 8:30 a.m. Continental Breakfast (complimentary – Heritage Hall)
- 8:30 a.m. to 12:00 p.m. General Session – Information and Enterprise Systems**
Session Chair: *Gintaras Reklaitis (Purdue University)*
- 8:30 a.m. to 9:10 a.m. Enterprise Resource Planning (ERP) Implementation – *Steve Jenison* and Rich Gargas (Eli Lilly and Co.)* [41]
- 9:10 a.m. to 9:50 a.m. Ontological Informatics Infrastructure for Chemical Product Design and Process Development – *Venkat Venkatasubramanian (Purdue University)* [60]
- 9:50 a.m. to 10:10 a.m. Refreshment Break
- 10:10 a.m. to 10:50 a.m. Current Opportunities, Future Directions: IBM's Perspective on PLM/ALM in the Chemicals Industry – *Val Rahmani and Lute Quintrell* (IBM)* [53]
- 10:50 a.m. to 11:30 a.m. Emerging Cyberinfrastructure: Opportunities for the Chemical Process Control Community – *Sangtae Kim (Purdue University)* [57]
- 11:30 a.m. to 12:00 p.m. Panel Discussion
- 12:00 p.m. to 6:30 p.m. Free Afternoon**
- 6:30 p.m. to 9:00 p.m. General Session – Systems Biology**
Session Chair: *Juergen Hahn (Texas A&M University)*
- 6:30 p.m. to 7:15 p.m. Signal Transduction and Regulation in Bacteria – *Ernst Dieter Gilles (Max Planck Institute for Dynamics of Complex Technical Systems)* [28]
- 7:15 p.m. to 7:30 p.m. Refreshment Break
- 7:30 p.m. to 8:15 p.m. Circadian Rhythm: A Natural, Robust, Multi-scale Control System – *Frank Doyle*, Rudi Gunawan, Neda Bagheri, Henry Mirsky, (University of California – Santa Barbara) and Tsz Leung To (Massachusetts Institute of Technology)* [62]
- 8:15 p.m. to 9:00 p.m. Analysis and Design of Complex Metabolic Networks – *Vassily Hatzimanikatis* and Liqing Wang (Northwestern University)* [66]
- 9:00 p.m. to 10:30 p.m. Hospitality (Sun Room)

Wednesday, January 11

- 7:30 a.m. to 8:30 a.m. Continental Breakfast (complimentary – Heritage Hall)
- 8:30 a.m. to 12:00 p.m. General Session – Modeling and State Estimation**
Session Chair: *Wolfgang Marquardt (RWTH Aachen University)*
- 8:30 a.m. to 9:10 a.m. An Overview of Subspace Identification – *Joe Qin (University of Texas at Austin)* [61]
- 9:10 a.m. to 9:50 a.m. Nonlinear Empirical Modeling Techniques – *Ronald Pearson (ProSanos Corporation)* [49]
- 9:50 a.m. to 10:10 a.m. Refreshment Break
- 10:10 a.m. to 10:50 a.m. Sequential Monte Carlo Methods: New Tools for Optimal Filtering, Identification and Control of Non-linear Systems – *Arnaud Doucet* (University of British Columbia), Sumeetpal Singh (Cambridge University) and Ba-Ngu Vo (Melbourne University)* [42]
- 10:50 a.m. to 11:30 a.m. Particle Filtering and Moving Horizon Estimation – *James Rawlings* (University of Wisconsin – Madison) and Bhavik Bakshi (Ohio State University)* [64]
- 11:30 a.m. to 12:00 p.m. Panel Discussion
- 12:00 p.m. to 1:00 p.m. Free time**
- 1:00 p.m. to 3:00 p.m. Vendor Display** (Heritage Hall)
Vendor Chair: *Robert Parker (University of Pittsburgh)*
- 3:00 p.m. to 6:30 p.m. Free time**
- 4:00 p.m. to 5:30 p.m. CACHE Task Force Meeting (Beehive Room)
Tom Edgar (University of Texas at Austin)
- 6:30 p.m. to 9:00 p.m. General Session – Microchemical and Fuel Systems**
Session Chair: *Wayne Bequette (Rensselaer Polytechnic Institute)*
- 6:30 p.m. to 7:15 p.m. Hierarchical Multiscale Model-Based Design of Experiments, Catalysts, and Reactors for Fuel Processing – *Dionisios Vlachos*, Ashish Mhadeshwar and Niket Kaisare (University of Delaware)* [45]
- 7:15 p.m. to 7:30 p.m. Refreshment Break
- 7:30 p.m. to 8:15 p.m. Dynamics and Control of Integrated Microchemical Systems with Application to Micro-Scale Fuel Processing – *Mayuresh Kothare (Lehigh University)* [47]
- 8:15 p.m. to 9:00 p.m. Control of Stationary and Transportation Fuel Cell Systems: Progress and Opportunities – *Subbarao Varigonda* (United Technologies Research Center) and Mithun Kamat (UTC Power)* [43]
- 9:00 p.m. to 10:30 p.m. Hospitality (Larch Lounge)

Thursday, January 12

- 7:30 a.m. to 8:30 a.m. Continental Breakfast (complimentary – Heritage Hall)
- 8:30 a.m. to 12:00 p.m. General Session – Dynamic Simulation and Optimization**
Session Chair: *Dominique Bonvin (Swiss Federal Institute of Technology)*
- 8:30 a.m. to 9:10 a.m. Sensitivity Analysis of Differential-Algebraic Equations and Partial Differential Equations – *Linda Petzold**, *Yang Cao, (University of California – Santa Barbara)* and *Shengtai Li, (Los Alamos National Laboratory)* and *Radu Serban (Lawrence Livermore National Laboratory)* [46]
- 9:10 a.m. to 9:50 a.m. Can Simulation Technology Enable a Paradigm Shift in Process Control? – *Robert Cox**, *Julie Smith** and *Yiannis Dimitratos (DuPont)* [40]
- 9:50 a.m. to 10:10 a.m. Refreshment Break
- 10:10 a.m. to 10:50 a.m. Simultaneous Dynamic Optimization Strategies: Recent Advances and Challenges – *Shivakumar Kameswaran* and *Larry Biegler** (Carnegie Mellon University) [52]
- 10:50 a.m. to 11:30 a.m. Optimization of Hybrid Systems – *Paul Barton**, *Cha Kun Lee* and *Mehmet Yunt (Massachusetts Institute of Technology)* [54]
- 11:30 a.m. to 12:00 p.m. Panel Discussion
- 12:00 p.m. to 2:00 p.m. Poster Display & Lunch** (Heritage Hall & Alpine Gallery)
Poster Chairs: *Prodromos Daoutidis (University of Minnesota)* and *Edward Gatzke (University of South Carolina)*
- Vendor Display with Lunch** (Heritage Hall)
Vendor Chair: *Robert Parker (University of Pittsburgh)*
- 2:00 p.m. to 5:30 p.m. Free time**
- 5:30 p.m. to 6:30 p.m. Reception (offsite at Ski Louise Mountain Resort)**
- 6:30 p.m. to 9:00 p.m. Banquet (offsite at Ski Louise Mountain Resort)**

Friday, January 13

- 7:00 a.m. to 8:00 a.m. Continental Breakfast (complimentary – Heritage Hall)
- 8:00 a.m. to 11:00 p.m.** **General Session – Process Control Education**
Session Chair: *Kenneth Muske (Villanova University)*
- 8:00 a.m. to 8:40 a.m. A Global View of Graduate Process Control Education –
Thomas Edgar (University of Texas at Austin), Babatunde Ogunnaike (University of Delaware and Kenneth Muske (Villanova University) [65]*
- 8:40 a.m. to 9:10 a.m. Panel Discussion
- 9:10 a.m. to 9:30 a.m. Refreshment Break
- 9:30 a.m. to 10:10 a.m. Renovating the Undergraduate Process Control Course –
Thomas Edgar (University of Texas at Austin), Babatunde Ogunnaike (University of Delaware), James Downs* (Eastman Chemical Co.), Kenneth Muske (Villanova University) and Wayne Bequette* (Rensselaer Polytechnic Institute) [58]*
- 10:10 a.m. to 11:00 a.m. Panel Discussion
- 11:00 a.m. to 11:15 a.m.** **Closing**
Conference Chairs: *Mike Henson (University of Massachusetts) and Tom Badgwell (Aspen Technology)*

CONTRIBUTED PAPERS

Ordered by Paper ID

Paper ID: 1

REDUCING PROCESS VARIABILITY VIA MULTIVARIABLE MODEL PREDICTIVE CONTROL: ANALYSIS LIMITATIONS AND ECONOMIC IMPLICATIONS

Douglas White

Paper ID: 2

FIRST-PRINCIPLES DYNAMIC SIMULATION, WORTH FOR CONTROL ENGINEERS? DEPROPANIZER CASE STUDY

R. González and J.M. Ferrer

Paper ID: 3

MIXED PRODUCT RUN-TO-RUN CONTROL – AN EXPERIMENT

Ying Zheng, Ming-Feng Wu, Shi-Shang Jang and David Shan-Hill Wang

Paper ID: 4

AUTOMATIC TUNING AND ADAPTION FOR SPECIFIC GROWTH RATE CONTROL OF FED-BATCH CULTIVATION

Z.I.T. Soons, G. van Straten and A.J.B. van Boxtel

Paper ID: 5

PERFORMANCE ASSESSMENT OF INDUSTRIAL CONTROLLERS

Alan Hugo

Paper ID: 6

SENSOR LOCATION FOR STABLE NONLINEAR SYSTEMS: PLACING MULTIPLE SENSORS

Abhay Singh and Juergen Hahn

Paper ID: 7

MOVING HORIZON ESTIMATION – THE EXPLICIT SOLUTION

John Hedengren, Thomas Edgar and James Rawlings

Paper ID: 8

APPLICATIONS OF MULTIVARIATE MODELING IN THE HYDROCARBON INDUSTRY

V.R. Radhakrishnan, Haslinda Zabiri and Do Thanh Van

Paper ID: 9

REAL-TIME MONITORING OF AN INDUSTRIAL BATCH PROCESS

Ognjen Marjanovic, Barry Lennox, David Sandoz, Keith Smith and Milton Crofts

Paper ID: 10

OPTIMIZATION OF FED-BATCH YEAST FERMENTATION USING DYNAMIC FLUX BALANCE MODELS

Jared Hjersted and Michael Henson

Paper ID: 12

A PARTIAL ENUMERATION STRATEGY FOR FAST LARGE-SCALE LINEAR MODEL PREDICTIVE CONTROL

Gabriele Pannocchia, James Rawlings and Stephen Wright

Paper ID: 13
A TWO-LEVEL APPROACH TO THE IDENTIFICATION OF HYBRID MODELS INVOLVING
PHYSICAL PARAMETERS
Aidong Yang, Elaine Martin and Julian Morris

Paper ID: 14
INTEGRATING SPECTRAL AND PROCESS DATA FOR MULTI-RECIPE PROCESS
MONITORING
A.J. Morris and E.B. Martin

Paper ID: 16
BATCH PROCESS PERFORMANCE MONITORING A STATE SPACE APPROACH
A. Alawi, S.W. Choi, E.B. Martin and A.J. Morris

Paper ID: 17
TWO-DEGREE-OF-FREEDOM MULTIVARIABLE CONTROL SYSTEM FOR MIMO
PROCESSES
Hsiao-Ping Huang and Feng-Yi Lin

Paper ID: 18
RELATIVE GAIN ARRAY: COMMON MISCONCEPTIONS AND CLARIFICATIONS
Vinay Kariwala and Morten Hovd

Paper ID: 19
OPTIMAL AUTOMATIC TUNING OF MODEL PREDICTIVE CONTROLLERS FOR THE
ACTIVATED SLUDGE PROCESS
M. Francisco and P. Vega

Paper ID: 20
IDENTIFICATION AND CONTROL OF A CONTINUOUS GRANULATION PROCESS
EXHIBITING HYBRID DYNAMICS
Christopher Long, Justin Gantt and Edward Gatzke

Paper ID: 21
CLINICALLY-RELEVANT CANCER CHEMOTHERAPY TREATMENT SCHEDULING USING
PARAMETERIZED MIXED-INTEGGER PROGRAMMING
John Harrold and Robert Parker

Paper ID: 22
OPEN-LOOP STUDIES FOR THE CONTROL OF PARTICLE SIZE DISTRIBUTIONS IN
SEMI-BATCH EMULSION POLYMERISATION PROCESSES
N. Bianco and C.D. Immanuel

Paper ID: 23
CLOSED LOOP IDENTIFICATION FOR MULTIVARIABLE MODEL PREDICTIVE
CONTROLLER ON A CATALYTIC GASOLINE SPLITTER
Steve Kline, Rick Street, Rohit Patwardhan and Alex Bae

Paper ID: 24
INDUSTRIAL EXPERIENCES IN ON-LINE ANALYTICAL SPECTROSCOPIC METHODS
FOR BIOREACTOR MONITORING
Sophia Triadaphillou, Elaine Martin, Gary Montague, Paul Jeffkins, Sarah Stimpson
and Alison Nordon

Paper ID: 25
SAMPLING-BASED BAYESIAN LATENT VARIABLE REGRESSION
Hongshu Chen and Bhavik Bakshi

Paper ID: 26
GENETIC ALGORITHMS FOR SIMULTANEOUS DESIGN AND CONTROL OF
CONTINUOUS STIRRED TANK REACTOR SYSTEM
Silvana Revollar, Rosalba Lamanna and Pastora Vega

Paper ID: 27
ADAPTIVE EXTREMUM SEEKING CONTROL OF A TUBULAR REACTOR WITH
DISBRIBUTED FEED
Pascal Cougnon, Denis Dochain, Martin Guay and Michel Perrier

Paper ID: 29
FAULT-TOLERANT CONTROL OF NONLINEAR PROCESS SYSTEMS: RECENT
DEVELOPMENTS AND FUTURE DIRECTIONS
Nael El-Farra, Prashant Mhaskar and Panagiotis Christofides

Paper ID: 30
TIGHTLY INTEGRATED NETWORKS: MULTI-SCALE DYNAMICS AND HIERARCHIAL
CONTROL
Michael Baldea, Aditya Kumar and Prodromos Daoutidis

Paper ID: 32
PREDICTIVE CONTROL OF DISTRIBUTED PROCESS SYSTEMS
Prashant Mhaskar, Stevan Dubljevic, Panagiotis Christofides and Nael El-Farra

Paper ID: 33
FIRST PRINCIPLES MODELING OF AN EVA HIGH PRESSURE AUTOCLAVE
POLYMERIZATION PLANT
Ian Alleyne, Sirish Shah, Uttandaraman Sundararaj, Sundaram Ramanathan, Simon
Lingard and Brent West

Paper ID: 34
A SMOOTHING BASED METHOD TO IMPROVE PERFORMANCE OF SEQUENTIAL
MONTE CARLO ESTIMATION UNDER POOR INITIAL GUESS
Lixin Lang, Prem Goel and Bhavik Bakshi

Paper ID: 35
PHBV COPOLYMER COMPOSITION CONTROL DRIVEN BY AN ARIFICIAL GENETIC
NETWORK
Sergio Iadevaia and Nikos Mantzaris

Paper ID: 38
EQUIVALENCE OF MPC DISTRUBANCE MODELS IDENTIFIED FROM DATA
Murali Rajamani, James Rawlings, S. Joe Qin and James Downs