ADCHEM 2006

International Symposium on
Advanced Control of Chemical Processes

FINAL PROGRAM

GRAMADO, BRAZIL
April 2—5, 2006

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General Overview

Date Time	Sunday April 2, 2006	Monday April 3, 2006	Tuesday April 4, 2006	Wednesday April 5, 2006
8:30		Plenary II **Sebastian Engell**	Plenary III **Claire Tomlin**	
9:30		**Keynote 1**: Nina Thornhill **Keynote 2**: Frank Allgöwer	**Keynote 5**: Xiaohua Xia **Keynote 6**: B. Srinivasan and Dominique Bonvin	**Keynote 9**: Andrzej Banaszuk **Keynote 10**: Erik Ydstie
10:00		Coffee Break		
10:20		**Oral Presentations** Session 1.1 **Estimation and Monitoring** Session 1.2 **Advances in Modeling and Identification** Session 1.3 **Model Predictive Control**	**Oral Presentations** Session 4.1 **Biomedical Systems Modeling, Analysis and Control** Session 4.2 **Bioprocesses Modeling and Identification** Session 4.3 **Estimation and Adaptive Control**	**Oral Presentations** Session 7.1 **Optimization and Design Applications** Session 7.2 **Control of Complex Systems** Session 7.3 **Process Control**
12:00		Lunch Break		
13:30		**Keynote 3**: Ton Backx **Keynote 4**: Marianthi Ierapetritou		**Keynote 11:** Jose Romagnoli **Keynote 12:** Jay Lee
14:00			**Keynote 7**: Cheng-Ching Yu **Keynote 8**: Joe Qin	
14:00		**Oral Presentations**		**Oral Presentations**
14:30	Registration Desk is opened	Session 2.1 **Optimization and Control of Biological Systems** Session 2.2 **Batch Processes** Session 2.3 **Optimization and Scheduling**	**Oral Presentations** Session 5.1 **Analysis and Control of Separation Processes** Session 5.2 **Modeling of Particulate Systems** Session 5.3 **Process Monitoring**	Session 8.1 **Petrochemical Systems** Session 8.2 **Modeling and Identification Applications** Session 8.3 **Performance Assessment of Closed Loop Systems**
16:00		**Poster Presentations**		
16:30		Session 3.1 **Batch Processes** Session 3.2 **Model Based Control** Session 3.3 **Process Control Applications**	**Poster Presentations** Session 6.1 **Modeling and Identification** Session 6.2 **Optimization and Scheduling** Session 6.3 **Process Monitoring**	**Closing Ceremony**
18:30	Break			
19:00	**Opening Ceremony**			
19:30	Plenary I **Tariq Samad**			
20:30	**Cocktail**		**Banquet** (Serrrano Convention Center)	

ADCHEM 2006 SESSION PROGRAM

Plenary Sessions

Sunday 04/02/06 **19:30**	*Plenary Lecture I* **SYSTEM ARCHITECTURE FOR PROCESS AUTOMATION: REVIEW AND TRENDS** **Tariq Samad**, Paul McLaughlin, and Joseph Lu, Honeywell, USA Chair: Francis J. Doyle III
Monday 04/03/06 **8:30**	*Plenary Lecture II* **FEEDBACK CONTROL FOR OPTIMAL PROCESS OPERATION** **Sebastian Engell**, Dortmund University, GERMANY Chair: Jorge O. Trierweiler
Tuesday 04/04/06 **8:30**	*Plenary Lecture III* **PARAMETER IDENTIFICATION VIA THE ADJOINT METHOD: APPLICATION TO PROTEIN REGULATORY NETWORKS** **Claire Tomlin**, Stanford University, USA Chair: Frank Allgöwer

Attention: All the plenary sessions will be held on Lupicinio Rodrigues Theater.

Sunday April 2nd, 2006

	Lupicinio Rodrigues Theater
19:00	Opening Ceremony
19:30	Plenary I
20:30	Cocktail Reception (Garda Restaurant)

Monday April 3rd,2006—Morning

08:30	Plenary Lecture II (*see pg. 3*)		
09:30	Keynote 1 (Theater) *ADVANCES AND NEW DIRECTIONS IN PLANT-WIDE CONTROLLER PERFORMANCE ASSESSMENT* **N. F. Thornhill** and A. Horch, University College London Chair: Dale E. Seborg	Keynote 2 (Room I) *GOOD OR BAD? WHEN IS PLANT NONLINEARITY AN OBSTACLE FOR CONTROL?* T. Schweickhardt and **F. Allgöwer**, University of Stuttgart Chair: Martin Guay	
10:00	Break	Break	Break
	Auditorium	*Room I*	*Room II*
	Session 1.1 – Applications of State Estimation and Monitoring Co-chairs: T. F. Edgar and C. Georgakis	Session 1.2 – Advances in Modeling and Identification Co-chairs: B. Huang and P. R. Barros	Session 1.3 – Model Predictive Control Co-chairs: J. F. Forbes and M. Hovd
10:20	Monitoring the Physiological State of Mammalian Cell Perfusion Processes by On-Line Estimation of Intracellular Fluxes *O. Henry, A. Kamen and M. Perrier, Ecole Polytechnique de Montreal*	A Combined Approach to System Identification of a Class of Hybrid System *P. Egbunonu and M. Guay, Queen's University*	An Analytical Solution to Multivariable Nonlinear MPC for Second-Order Laguerre Systems *A. L. Antoine and R. S. Parker, University of Pittsburgh*
10:40	Observer Design using Boundary Injections for Pipeline Monitoring and Leak Detection *O. M. Aamo, J. Salvesen and B. A. Foss, Norwegian University of Science and Technology*	Parameter and Delay Estimation of Continuous-Time Models from Irregularly Sampled Output *S. Ahmed, B. Huang and S. L. Shah, University of Alberta*	Feasible Model Predictive Control with Bounded Disturbances *M. Hovd, Norwegian University of Science and Technology*
11:00	First Principles Invariants for Asymptotic Observers in Chemical Reactors *F. Couenne, C. Jallut and D. Dochain, Université Claude Bernard Lyon 1, Universite Catholique de Louvain Batiment*	Data-Based Uncertainty Modeling by Convex Optimization Techniques *K. E. Häggblom, Åbo Akademi University*	Nonconvex Optimization and Robustness in Realtime Model Predictive Control *D. DeHaan and M. Guay, Queen's University*
11:20	Control of Continuous Reactors With Non-Monotonic Reaction Rate *J. Alvarez, J. Diaz-Salgado and J. Moreno, Universidad Autónoma de Madrid*	Closed Loop Continuous-Time FOPTD Identification using Time-Frequency Data from Relay Experiments *G. Acioli Jr Marcus A. R. Berger Péricles R. Barros, Universidade Federal de Campina Grande*	Extended Robust Model Predictive Control for Integrating Systems *A.H. González, J.L. Marchetti and D. Odloak, Universidad Nacional del Litoral, University of São Paulo*
11:40	Rotary Kiln Product Quality Forecasting Based on Flame Imaging *C. Duchesne, A. Desbiens and G. Szatvanyi, Universite Laval*	Sensitivity of Bifurcation Traits to Model Parameters in Poly-Beta- Hydroxybutyrate Production *M. A. Pinto and C. D. Immanuel, Imperial College London*	Generalized Predictive Control in Fast-rate Single-rate and Input Multiplex Type Multirate System *T. Sato and A. Inoue, University of Hyogo*
12:00	Lunch (Garda Restaurant)	Lunch (Garda Restaurant)	Lunch (Garda Restaurant)

Monday April 3rd,2006—Morning

Notes

Monday April 3rd,2006—Afternoon

13:30	Keynote 3 (Theater) *INDUSTRIAL CHALLENGES IN MODELING OF PROCESSES AND MODEL REDUCTION* **T. Backx**, O. Bosgra and W. Marquardt, Eindhoven University of Technology, RWTH Aachen University Chair: Alain VandeWouwer	Keynote 4 (Room I) *SHORT–TERM SCHEDULING OF CHEMICAL PROCESS INCLUDING UNCERTAINTY* **M. G. Ierapetritou** and Z. Jia, Rutgers University Chair: Charles D. Immanuel	
	Auditorium	*Room I*	*Room II*
14:00	Session 2.1 – Optimization and Control of Biological Systems Co-chairs: I. Queinnec and A. VandeWouver	Session 2.2 – Batch Processes Co-chairs: S. Palanki and M. Hovd	Session 2.3 – Optimization and Scheduling Co-chairs: M. Ierapetritou and K. Kouramas
14:00	Dynamic Analysis and Control of Chemical and Biochemical Reaction Networks *I. Otero–Muras, G. Szederkényi, A. A. Alonso and K. M. Hangos, Spanish Council for Scientific Research*	Fault Detection and Diagnosis in Industrial Fed-Batch Cell Culture *J. C. Gunther, D. E. Seborg and J. S. Conner, University of California, Santa Barbara*	Optimal Operation of Ethylene Polymerization Reactors for Tailored MWD *M. Asteasuain and A. Brandolin, Planta Piloto de Ingenieria Quimica*
14:20	A Risk Management Criterion for an Unstable Wastewater Treatment Process *J. Hess, O. Bernard and M. Djuric, French Research Institute of Computer Science and Automatic Control*	Batch Process Monitoring using Multiblock Multiway Principal Component Analysis *S. Perk and A. Cinar, Illinois Institute of Technology*	Optimal Operation of an LNG Plant *J. B. Jensen and S. Skogestad, Norwegian University of Science and Technology*
14:40	Control of High–Solids Saccharification using a Model–Based Methodology for Fed–Batch Operation *D. B. Hodge, M. N. Karim, D. J. Schell and J. D. McMillan, National Renewable Energy Laboratory, Texas Tech University*	2D Model Predictive Iterative Learning Control Schemes for Batch Processes *J. Shi, F. Gao and T. J. Wu, Hong Kong University of Science and Technology*	Facility Location Problems: Model, Algorithm, and Application to Compressor Allocation *E. Camponogara, M. P. de Castro and A. Plucenio, Federal University of Santa Catarina*
15:00	ITSE Observers for Batch Processes. A Wastewater Treatment Case Study *G. Acuna and D. Dochain, Universidad de Santiago de Chile*	Scale-Up of Batch Processes Via Decentralized Control *A. Marchetti, D. Bonvin and M. Amrhein, Ecole Polytechnique Fédérale de Lausanne*	Capacity Management in the Chemical Supply Chain *P. K. Naraharisetti, I. A. Karimi, and R. Srinivasan, Institute of Chemical and Engineering Sciences*
15:20	Robust Adaptive Control of Yeast Fed–Batch Cultures *F. Renard, A. VandeWouwer and M. Perrier, Faculté Polytechnique de Mons*	Real-Time Dynamic Optimization of Non-Linear Batch Systems *N. Peters, M. Guay and D. DeHaan, Queen's University*	Process Optimization and Control Under Uncertainty: A Chance Constrained Programming Approach *H. Arellano-Garcia, T. Barz and G.Wozny, Berlin University of Technology*
15:40	Output Tracking of Bioprocesses Through Recirculation with Unknown Input Concentration *A. Rapaport, F. Mazenc and J. Harmand, French National Institute for Agricultural Research*		Optimal Grade Transition in Polymerization Reactors: A Comparative Case Study *N. Padhiyar, S. Bhartiya and R. D. Gudi, Indian Institute of Technology Bombay*
16:00	Poster Session 1. Batch Processes	Poster Session 2. Model Based Control	Poster Session 3. Process Control Applications

Monday April 3rd,2006—Afternoon

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Monday April 3rd,2006—Poster Session

Chair: Francis J. Doyle III

POSTER SESSION 3.1: BATCH PROCESSES	
P3.1-1	Batch/Semi-Batch Process Fault Detection and Diagnosis using Orthogonal Nonlinear Multi-Way PCA: Application to an Emulsion Co-Polymerization Process *A. Maulud and J. Romagnoli, University of Sydney*
P3.1-2	An Adjoined Multi-DPCA Approach for Online Monitoring of Fed-Batch Processes *N. Y. Seng and R. Srinivasan, National University of Singapore*
P3.1-3	Prediction of Radicals of Critical Length in Emulsion Polymerization Processes *Y. R. Mariano, E. Lopes Casella and M. Tvrzska de Gouvea, Universidade Presbiteriana Mackenzie*
P3.1-4	A Kinetic Mathematical Model of Kraft Pulping Process for Control and Optimization Application N. V. Polowski, E. C. Vasco de Toledo and R. M. Filho, *University of Campinas*
P3.1-5	Dynamic Optimization of Molecular Weight Distribution in Batch Polymerization Reactors *A. Krallis, D. Meimaroglou, V. Saliakas, C. Chatzidoukas and C. Kiparissides, Aristotle University of Thessaloniki*
POSTER SESSION 3.2: MODEL BASED CONTROL	
P3.2-1	Adaptive Robust Control for a Class of Uncertain Time-Delay Systems via Output Feedback *H. Wu, Hiroshima Prefectural University*
P3.2-2	Adaptive Control of a Neutralization Reactor *J. Figueroa, J. Cousseau, S. Werner and T. Laakso, Universidad Nacional del Sur*
P3.2-3	Robust MPC with Output Feedback and Realigned Model *J. M. Perez and D. Odloak, Petrobras Cenpes*
P3.2-4	Design of Robust Gain-Scheduled MPC Controllers for Nonlinear Processes *J. Gao,and H. M. Budman, University of Waterloo*
P3.2-5	Towards Robust Design of Closed-Loop Nonlinear Systems with Input and State Constraints *J. Gerhard, W. Marquardt and M. Mönnigmann, RWTH Aachen University*
P3.2-6	A Control Strategy using a CPWL NOE Structure *L. R. Castro, J. L. Figueroa and O. E. Agamennoni, Universidad Nacional del Sur*
P3.2-7	A State Space Approach for Boundary Control of Distributed Parameter Systems *M. Dillabough, H. Shang and P. James McLellan, Laurentian University*
P3.2-8	Control of a Fedbatch Bioprocess using Nonlinear Model Predictive Control *L. A. Álvarez, J. F. García and D. A. Urrego, Universidad Nacional de Colombia*
P3.2-9	Multivariable Control Strategy Based on Bifurcation Analysis of an Industrial Gas-Phase Polymerization Reactor *N. P. G. Salau, A. R. Secchi, J. O. Trierweiler and G. A. Neumann, Universidade Federal do Rio Grande do Sul*
P3.2-10	Predictive Control of Asymmetrical Processes *C. de Prada and S. Cristea, University of Valladolid*

Monday April 3rd,2006—Poster Session

Chair: Francis J. Doyle III

POSTER SESSION 3.3: PROCESS CONTROL APPLICATIONS	
P3.3-1	Adaptive Control of Three-Tank-System: Polynomial Approach *M. Kubalcik and V. Bobal, Tomas Bata University*
P3.3-2	Agent-Based Control of Spatially Distributed Chemical Reactor Networks *E. Tatara, M. North, C. Hood, F. Teymour and A. Cinar, Illinois Institute of Technology*
P3.3-3	Control of Liquid Tanks using Decentralized Approach with Logical Supervisor *P. Chalupa and V. Bobál, Tomas Bata University*
P3.3-4	Injection Velocity Control Based-on an Iterative Learning and Feedback Combined Controller *Y. Yang and F. Gao, Hong Kong University of Science and Technology*
P3.3-5	Controlling the Performance of a Cyclone Oil-Water Separation System *G. Cavalcanti, N. Magno, A. Calil and E. L. Lima, Petrobras*
P3.3-6	Robust MPC of the Refining Stage of an Electric Arc Furnace *L.C. Coetzee, I.K. Craig, University of Pretoria*
P3.3-7	Dynamics and Control of Reactive Distillation Configurations for Acetic Acid Esterification *S.-B. Hung, Y.-T. Tang, Y.-W. Chen, I-K. Lai, W.-J. Hung, H.-P. Huang, M.-J. Lee and C.-C. Yu, National Taiwan University of Science and Technology*
P3.3-8	A Wavelet Filtering Application For On-Line Dynamic Data Reconciliation *K.-Y. Luo and H.-P. Huang, National Taiwan University of Science and Technology*
P3.3-9	Constrained Nonlinear Model Predictive Control for Practical Application *A. G. Montandon1, R. M. Borges and H. M. Henrique, Federal University of Uberlândia*
P3.3-10	Multivariable Subspace Identification and Predictive Control of a Heat-Integrated Superfractionator *G. Pannocchia A. Micchi, R. Bulleri, A. Brambilla and G. Marchetti, University of Pisa*
P3.3-11	Control Strategies Evaluation for a Three-Phase Hydrogenation Catalytic Reactor *D. N. C. Melo, E. C. Vasco de Toledo, M. M. Santos and R. M. Filho, State University of Campinas*
P3.3-12	On Input-Output Selection for Multiloop Control: from RGA to ROMA *A. Balestrino, A. Landi, University of Pisa*
P3.3-13	Design and Control of a Power Generation System for a Fuel-Cell Powered Automobile *P. K. Kolavennu, S. Palanki and J. C. Telotte, Florida State University*
P3.3-14	Output-Feedback Control of Continuous Polymer Reactors with Continuous and Discrete Measurements, *P. Gonzalez and J. Alvarez, Universidad Autonoma Metropolitana-Iztapalapa*
P3.3-15	Auto-Tuning of PID Controllers for MIMO Processes by Relay Feedback *L. Campestrini, P. R. Barros and A. S. Bazanella, Universidade Federal do Rio Grande do Sul*
P3.3-16	Regulatory Control of a Pilot Rotary Kiln for Activated Carbon Production *O. A. Ortiz, N. Aros and I. G. Suarez, Universidad Nacional de San Juan*
P3.3-17	Development of an Extruder Based Melt Index Soft Sensor *I. R. Alleyne, S. Shah, U. Sundararaj and B. West, University of Alberta*

Tuesday April 4th,2006—Morning

08:30	Plenary Lecture III (see pg. 3)		
09:30	Keynote 5 (Theater) *MODELING OF HIV INFECTION: VACCINE READINESS, DRUG EFFECTIVENESS AND THERAPEUTICAL FAILURES* **X. Xia**, University of Pretoria Chair: Robert S. Parker	Keynote 6 (Room I) *STABILITY AND CONTROLABILITY OF BATCH PROCESSES* **B. Srinivasan** and D. Bonvin, Ecole Polytechnique Fédérale de Lausanne Chair: Hector Budman	
10:00	Break	Break	Break
	Auditorium	*Room I*	*Room II*
	Session 4.1 –Biomedical Systems Modeling, Analysis and Control Co-chairs: A. Cinar and D. E. Seborg	Session 4.2 – Bioprocess Modeling and Identification Co-chairs: A. VandeWouwer and M. Perrier	Session 4.3 – Estimation and Adaptive Control Co-chairs: E. Ydstie and H. Budman
10:20	Identification of Linear Dynamic Models for Type 1 Diabetes: A Simulation Study *D. A. Finan and D. E. Seborg, University of California, Santa Barbara*	Optimal Experiment Design in Bioprocess Modelling:From Theory to Practice *A. M. Cappuyns, K. Bernaerts, I. Y. Smets, O. Ona, E. Prinsen, J. Vanderleyden and J. F. Van Impe, Katholieke Universiteit Leuven*	Tuning an Adaptive Controller using a Robust Control Approach *J. Huebsch and H. Budman, University of Waterloo*
10:40	Dynamic Modeling of Exercise Effects on Plasma Glucose and Insulin Levels *A. Roy and R. S. Parker, University of Pittsburgh*	Dynamic Modelling of a Biofilter Used for Nitrification of Drinking Water at Low Influent Ammonia Concentrations *I. Queinnec, J. C. Ochoa, E. Paul and A. VandeWouwer, Le Centre National de la Recherche Scientifique, Faculté Polytechnique de Mons*	Parameter Convergence in Adaptive Extremum Seeking Control *V. Adetola and M. Guay, Queen's University*
11:00	Pathways for Optimization-Based Drug Delivery Systems and Devices *L. Bleris, P. Vouzis, M. V. Arnold and M. V. Kothare, Lehigh University*	Dynamic PCA for Phase Identification of Rifamycin B Fermentation in Multi-Substrate Complex Media *X. T. Doan, R. Srinivasan, P. M. Bapat, and P. P. Wangikar Institute of Chemical and Engineering Sciences*	Geometric Estimation of Ternary Distillation Columns *A. Pulis, C. Fernandez, R. Baratti, and J. Alvarez Universidad Autonoma Metropolitana-Iztapalapa*
11:20	Flexible Run-to-Run Strategy for Insulin Dosing in Type 1 Diabetic Subjects *C. C. Palerm, H. Zisser, L. Jovanovic and F. J. Doyle,III, University of California, Santa Barbara*	A New Model of Phenol Biodegradation and Activated Sludge Growth in Fedbatch Cultures *C. Ben-Youssef, J. Waissman and G. Vázquez, Universidad Politécnica de Pachuca*	Finite Time Observer for Nonlinear Systems *F. Sauvage, M. Guay and D. Dochain, Queen's University, Universite Catholique de Louvain*
11:40	Nonlinear Model Predictive Control for Optimal Discontinuous Drug Delivery *N. Hudon, M. Guay, M. Perrier and D. Dochain, Queen's University*		Dynamic Estimation and Uncertainty Quantification for Model-Based Control of Discrete Systems *J. Gândara, B. Duarte and N. M. C. Oliveira, Universidade de Coimbra*
12:00	Lunch	Lunch	Lunch

Tuesday April 4th,2006—Morning

Notes

Tuesday April 4th,2006—Afternoon

14:00	Keynote 7 (Theater) *MULTIVARIABLE CONTROLLER PERFORMANCE MONITORING* **S. J. Qin** and J. Yu, University of Texas at Austin Chair: Dale E. Seborg	Keynote 8 (Room I) *PSE RELEVANT ISSUES IN SEMICONDUCTOR MANUFACTURING: APPLICATION TO RAPID THERMAL PROCESSING* **C. C. Yu**, A. J. Su, J. C. Jeng, H. P. Huang, S. Y. Hung and C. K. Chao National Taiwan University Chair: Robert S. Parker	
	Auditorium	*Room I*	*Room II*
	Session 5.1 – Analysis and Control of Separation Processes Co-chairs: B. A. Ogunnaike and J. A. Mandler	Session 5.2 – Modeling of Particulate Systems Co-chairs: C. Kiparissides and R. M. Filho	Session 5.3 – Process Monitoring Co-chairs: N. Thornhill and H. Budman
14:30	Parameter and State Estimation in Chromatographic SMB Processes with Individual Columns and Nonlinear Adsorption Isotherms *A. Küpper and S. Engell, Universität Dortmund*	Challenges of Modelling a Population Balance Using Wavelet *J. Utomo, N. Balliu and M. O. Tade, Curtin University of Technology*	A Data-Based Measure for Interactions in Multivariate Systems *M. Rossi, A. K. Tangirala, S. L. Shah and C. Scali, University of Alberta*
14:50	Parametric Model Predictive Control of Air Separation *J. A. Mandler, N. A. Bozinis, V. Sakizlis, E. N. Pistikopoulos, A. L. Prentice, H. Ratna and R. Freeman, Air Products and Chemicals, Inc*	Development of a Dynamic Multi-Compartment Model for the Prediction of Particle Size Distribution and Molecular Properties in a Catalytic Olefin Polymerization FBR *G. Dompazis, V. Kanellopoulos and C. Kiparissides, Aristotle University of Thessaloniki*	Issues in On-Line Implementation of a Closed Loop Performance Monitoring System *C. Scali, F. Ulivari and A. Farina, University of Pisa*
15:10	Stabilizing Control of na Integrated 4-Product Kaibel Column *J. Strandberg and S. Skogestad, Norwegian University of Science and Technology*	Distributional Uncertainty Analysis of a Batch Crystallization Process using Power Series and Polynomial Chaos Expansions *Z. K. Nagy and R. D. Braatz, Loughborough University, University of Illinois*	Steady-State Detection for Multivariate Systems Based on PCA and Wavelets *L. Caumo, A. O. Kempf and J. O. Trierweiler, Universidade Federal do Rio Grande do Sul*
15:30	Dynamics and Control of Heat Integrated Distillation Column (HIDIC) *T. Fukushima, M. Kano, O. Tonomura and S. Hasebe, Kyoto University*	Dynamic Evolution of the Particle Size Distribution in Particulate Processes *D. Meimaroglou, A.I. Roussos, and C. Kiparissides Aristotle University of Thessaloniki*	Fault Detection Using Projection Pursuit Regression (PPR): A Classification Versus an Estimation Based Approach *S. Lou, T. Duever and H. Budman, University of Waterloo*
15:50	Rigorous Simulation and Model Predictive Control of a Crude Distillation Unit *G. Pannocchia, L. Gallinelli, A. Brambilla, G. Marchetti and F. Trivella, University of Pisa*	Nonlinear Observer for the Reconstruction of Crystal Size Distributions in Polymorphic Crystallization Processes *T. Bakir, S. Othman, G. Fevotte and H. Hammouri, Université Claude Bernard Lyon 1*	Fault Detection using Correspondence Analysis: Application to Tennessee Eastman Challenge Problem *K. P. Detroja, R. D. Gudi and S. C. Patwardhan, Indian Institute of Technology Bombay*
16:10		Calculation of the Molecular Weight – Long Chain Branching Distribution in Branched Polymers *A. Krallis and C. Kiparissides, Aristotle University of Thessaloniki*	Using Sub Models for Dynamic Data Reconciliation *L. Lachance, A. Desbiens and D. Hodouin, Universite Laval*
16:30	Poster Session 4. Modeling and Identification	Poster Session 5. Optimization and Scheduling	Poster Session 6. Process Monitoring

Tuesday April 4th,2006—Afternoon

Notes

Tuesday April 4th,2006—Poster Session

Chair: Argimiro R. Secchi

POSTER SESSION 6.1: MODELING AND IDENTIFICATION	
P6.1-1	Control Orientated B-Spline Modelling of a Dynamic MWD System *H. Yue, H. Wang, L. Cao,* *University of Manchester*
P6.1-2	Prediction of Glycosylation Site-Occupancy Using Artificial Neural Networks *R. S. Senger and M. N. Karim,* *Texas Tech University*
P6.1-3	Real Time Tracking of Ladle Furnaces: An Analytical Approach *J. R. Zabadal, R. L. Garcia, and M. G. Salgueiro,* *Universidade Federal do Rio Grande do Sul*
P6.1-4	Solving Water Pollution Problems Using Auto-Bäcklund Transformations *J. R. Zabadal, R. L. Garcia, and M. G. Salgueiro,* *Universidade Federal do Rio Grande do Sul*
P6.1-5	Identification of Uncertain Wiener Systems *J. Figueroa, S. Biagiola and O. Agamennoni,* *Universidad Nacional del Sur*
P6.1-6	A Comparative Study of Prediction of Elemental Composition of Coal using Empirical Modelling *A. Saptoro, H.B. Vuthaluru and M.O. Tade,* *Curtin University of Technology*
P6.1-7	Energy Based Discretization of an Adsorption Column *A. Baaiu, F. Couenne, L. Lefevre, Y. Le Gorrec and M. Tayakout,* *Université Lyon 1, Le Centre National de la Recherche Scientifique*
P6.1-8	Inference of Oil Content in Petroleum Waxes by Artificial Neural Networks *A. D. M. Lima, D. do C.S. Silva, V. S. Silva and M. B. De Souza Jr.,* *Petrobras*
P6.1-9	Short and Long Timescales in Recycles *H. A Preisig,* *Norwegian University of Science and Technology*
P6.1-10	Finite Automata from First-Principle Models: Computation of Min and Max Transition Times *H. A Preisig,* *Norwegian University of Science and Technology*
P6.1-11	Neural Modeling as a Tool to Support Blast Furnace Ironmaking *F. Tadeu, P. de Medeiros, A. Pitasse da Cunha and A. M. F. Fileti,* *Companhia Siderúrgica Nacional, University of Campinas, MetalFlexi*
P6.1-12	An Inverse Artificial Neural Network Based Modelling Approach for Controlling HFCS Isomerization Process *M. Yuceer and R. Berber,* *Ankara University*
P6.1-13	An Algorithm for Automatic Selection and Estimation of Model Parameters *A. R. Secchi, N. S. M. Cardozo, E. Almeida and T. F. Finkler,* *Universidade Federal do Rio Grande do Sul*
P6.1-14	Rigorous and Reduced Dynamic Models of the Fixed Bed Catalytic Reactor for Advanced Control Strategies *E. C. Vasco de Toledo, J. M. F. da Silva, J. F. da C. A. Meyer and R. M. Filho,* *State University of Campinas*
POSTER SESSION 6.2: OPTIMIZATION AND SCHEDULING	
P62-1	Modeling of NLP Problems of Chemical Processes Described By ODE's *M. T. de Gouvêa and D. Odloak,* *Universidade Presbiteriana Mackenzie*
P62-2	Optimal Multi-period Design and Opertation of Multi-product Batch Plants *M. S. Moreno, J. M. Montagna and O. A. Iribarren,* *Instituto de Desarrollo y Diseño Avellaneda*

Tuesday April 4th,2006—Poster Session

Chair: Argimiro R. Secchi

POSTER SESSION 6.2: OPTIMIZATION AND SCHEDULING (CONT.)	
P6.2-3	Improved Tightened MILP Formulations for Single-Stage Batch Scheduling Problems *P. A. Marchetti and J. Cerdá,* *Instituto de Desarrollo Tecnológico para la Industria Química*
P6.2-4	Constraint Logic Programming for Non Convex NLP and MINLP Problems *P. R. Kotecha and R. D. Gudi,* *Indian Institute of Technology Bombay*
P6.2-5	Heuristics for Control Structure Design *A. Heidrich and J. O. Trierweiler,* *Universidade Federal do Rio Grande do Sul*
P6.2-6	Algorithms for Real-Time Process Integration: One Layer Approach *M. C. A. F. Rezende, R. M. Filho and A. C. Costa,* *University of Campinas*
P6.2-7	Steam and Power Optimization in a Petrochemical Industry *E. G. de Fronza Magalhães, S. Tiago and K. A. Wada, Argimiro R. Secchi* *Copesul, Universidade Federal do Rio Grande do Sul*
P6.2-8	Multiperiod Optimization Model for Synthesis, Design, and Operation of Non-Continuous Plants *G. Corsano, J. M. Montagna, P. A. Aguirre, and O. A. Iribarren,* *Instituto de Desarrollo y Diseño Avellaneda*
P6.2-9	Dynamic Penalty Formulation for Solving Highly Constrained Mixed-Integer Nonlinear Programming Problems *C. M. Silva and E. C. Biscaia Jr.,* *Universidade Federal do Rio de Janeiro*
P6.2-10	Application of Genetic Algorithms to the Optimization of an Industrial Reactor *I. R. de Souza Victorino and R. M. Filho,* *State University of Campinas*
POSTER SESSION 6.3: PROCESS MONITORING	
P6.3-1	A Novel Modular Nonlinear Network for Fault Diagnosis and Supervised Pattern Classification *B. Bhushan and J. A. Romagnoli,* *University of Sydney*
P6.3-2	Block Diagram Proposal of Protection System for a PWR Nuclear Power Plant *F. J. De Lima and C. Garcia,* *Escola Politécnica of the University of São Paulo*
P6.3-3	Performance Assessment of Model Predictive Control Systems *O. A. Z. Sotomayor and D. Odloak,* *Polytechnic School of the University of São Paulo*
P6.3-4	Towards an Integrated Co-Operative Supervision System for Activated Sludge Processes Optimisation *C. Bassompierre, C. Cadet, J. F. Béteau, and M. Aurousseau,* *Laboratoire d'Automatique de Grenoble* *Laboratoire de Génie des Procédés Papetiers*
P6.3-5	Quantifying Closed Loop Performance Based on On-Line Performance Indices *M. Farenzena and J. O. Trierweiler,* *Federal University of Rio Grande do Sul*
P6.3-6	Variability Matrix: A New Tool to Improve the Plant Performance *M. Farenzena and J. O. Trierweiler,* *Federal University of Rio Grande do Sul*
P6.3-7	Assessment of Economic Performance of Model Predictive Control Through Variance/Constraint Tuning *F. Xu, B. Huang and E.C. Tamayo,* *University of Alberta*
P6.3-8	Diagnosis of Faults with Varying Intensities using Possibilistic Clustering and Fault Lines *K. P. Detroja, R. D. Gudi and S. C. Patwardhan,* *Indian Institute of Technology Bombay*

Wedsneday April 5th,2006—Morning

09:30	Keynote 9 (Auditorium) *THE ROLE OF CONTROL IN DESIGN: FROM FIXING PROBLEMS TO THE DESIGN OF DYNAMICS* **A. Banaszuk**, P. G. Mehta and G. Hagen, *United Technologies* Chair: Frank Allgöwer	Keynote 10 (Room I) *DISTRIBUTED DECISION MAKING IN SUPPLY CHAIN NETWORKS* *B. E. Ydstie, K. R. Jillson and E. J. Dozal-Mejorada, Carnegie Mellon University* Chair: Jorge A. Mandler	
10:00	Break	Break	Break
	Auditorium	*Room I*	*Room II*
10:20	Session 7.1 – Optimization and Design Applications Co-chairs: D. Bonvin and A. M. F. Fileti	Session 7.2 – Control of Complex Systems Co-chairs: C. Georgakis and F. Gao	Session 7.3 – Process Control Co-chairs: W. Marquardt and B. Huang
10:20	Scheduled Optimization of an MMA Polymerization Process *R. Lepore, A. Vande Wouwer, M. Remy, R. Findeisen, Z. Nagy and F. Allgöwer, Faculté Polytechnique de Mons, University of Stuttgart*	Distributed Model Predictive Control of a Four-Tank System *M. Mercangöz and F. J. Doyle III, University of California, Santa Barbara*	Experimental Validation of Model-Based Control Strategies for Multicomponent Azeotropic Distillation *L. Rueda, T. F. Edgar and R. B. Eldridge, University of Texas at Austin*
10:40	Opportunity for Real-Time Optimization In A Newsprint Mill: A Simulation Case Study *A. Berton, M. Perrier and P. Stuart, École Polytechnique de Montréal*	Coordinated Decentralized MPC for Plant-Wide Control of A Pulp Mill Benchmark Problem *R. Cheng, J. F. Forbes and W. S. Yip, University of Alberta*	Run-To-Run Control Of Membrane Filtration Processes *J. Busch and W. Marquardt, RWTH Aachen University*
11:00	Product Design via PLS Modeling: Stepping Out of Historical Data into Unknown Operating Space *N. Lu, Y. Yao and F. Gao, Hong Kong University of Science and Technology*	Optimizing Hybrid Dynamic Processes by Embedding Genetic Algorithms into MPC *T. Tometzki, O. Stursberg, C. Sonntag and S. Engell, Dortmund University*	Model Predictive Control of a Catalytic Flow Reversal Reactor with Heat Extraction *A. M. Fuxman, J. F. Forbes, and R. E. Hayes, University of Alberta*
11:20	Adaptive Control of Bromelain Precipitation in a Fed-Batch Stirred Tank *F. V. da Silva, R. L. A. dos Santos and A. M. F. Fileti, University of Campinas*	Optimal Control of Multivariable Block Structured Models *G. Harnischmacher and W. Marquardt, RWTH Aachen University*	NMPC with State-Space Models Obtained Through Linearization on Equilibrium Manifold *S. Koch, R. G. Duraiski, P. B. Fernandes and J. O. Trierweiler, Universidade Federal do Rio Grande do Sul*
11:40		Operability of Multivariable Non-Square Systems *F. Lima and C. Georgakis, Tufts University*	Multi Model Approach to Multivarible Low Order Structured-Controller Design *M. Escobar and J. O. Trierweiler, Universidade Federal do Rio Grande do Sul*
12:00	Lunch (Garda Restaurant)	Lunch (Garda Restaurant)	Lunch (Garda Restaurant)

Wedsneday April 5th,2006—Morning

Notes

Wedsneday April 5th,2006—Afternoon

13:30	Keynote 11 (Auditorium) *ON DATA PROCESSING AND RECONCILIATION: TRENDS AND THE IMPACT OF TECHNOLOGY* **J.A. Romagnoli**, P.A. Rolandi, Y.Y. Joe and K.V. Ling, Louisiana State University Chair: Biao Huang	Keynote 12 (Room I) *ITERATIVE LEARNING CONTROL APPLIED TO BATCH PROCESSES* **J. H. Lee** and K. S. Lee, Georgia Institute of Technology Chair: Bala Srinivasan	
	Auditorium	*Room I*	*Room II*
14:00	Session 8.1 – Optimization and Control of Petrochemical Systems Co-chairs: B. Foss and M. T. Gouvea	Session 8.2 – Practical Applications of Modeling and Identification Co-chairs: J. A. Mandler and O. Serra	Session 8.3 – Performance Assessment of Closed-Loop Systems Co-chairs: J. H. Lee and D. E. Seborg
14:00	Application of Plantwide Control to Large Scale Systems. Part I - Self-Optimizing Control of The HDA Process *A. Araújo, M. Govatsmark and S. Skogestad, Norwegian University of Science and Technology*	Modeling for Control of Reactive Extrusion Processes *S. C. Garge, M. D. Wetzel and B. A. Ogunnaike, University of Delaware*	Performance Assessment of Run-To-Run EWMA Controllers *A. V. Prabhu and T. F. Edgar, University of Texas at Austin*
14:20	Dynamic Real-Time Optimization of a FCC Converter Unit *E. A. Neto and A. R. Secchi, Universidade Federal do Rio Grande do Sul*	Factors Affecting Online Estimation of Diastereomer Composition using Raman Spectroscopy *S.-W. Wong, C. Georgakis, G. Botsaris, K. Saranteas and R. Bakale, Tufts University*	Modified Independent Component Analysis for Multivariate Statistical Process Monitoring *J.-M. Lee, S. J. Qin and I.-B. Lee, University of Texas at Austin*
14:40	Inferential Control Based on a Modified QPLS for an Industrial FCCU Fractionator *X. Tian, L. Tu and X. Deng, China University of Petroleum*	Modeling and Identification of Nonlinear Systems using SISO Lem-Hammerstein and Lem-Wiener Model Structures *P. B. Fernandes, D. Schlipf and J. O. Trierweiler, Universidade Federal do Rio Grande do Sul*	Detection and Diagnosis of Plant-Wide Oscillations via the Method of Spectral Envelope *H. Jiang, M. A. A. S. Choudhury and S. L. Shah, University of Alberta*
15:00	Control Solutions for Subsea Processing and Multiphase Transport *H. Sivertsen, J.-M. Godhavn, A. Faanes and S. Skogestad, Norwegian University of Science and Technology*	Multivariable Fuzzy Identification Approach Applied to Complex Liquid Residues Incineration Process *F. M. Almeida, G. Barreto and G. L. O. Serra, University of Campinas*	Detection of Plant-Wide Disturbances Using a Spectral Classification Tree *N. F. Thornhill and H. Melbø, University College London*
15:20	Active Control Strategy for Density-Wave in Gas-Lifted Wells *L. Sinègre, N. Petit, P. Lemétayer and T. Saint- Pierre, Ecole des Mines de Paris*	Identification of Polynomial NARMAX Models for an Oil Well Operating by Continuous Gas-Lift *D. J. Pagano, V. D. Filho and A. Plucenio, Federal University of Santa Catarina*	Root Cause Analysis of Oscillating Control Loops *R. Srinivasan, M. R. Maurya and R. Rengaswamy Clarkson University University of California, San Diego*
15:40	A Control Strategy for an Oil Well Operating via Gas Lift *A. Plucenio, Antonio G. Mafra, and D. J. Pagano, Federal University of Santa Catarina*	Comparison Between Phenomenological and Empirical Models for Polymerization Processes Control *T. F. Finkler, G. A. Neumann, N. S. M. Cardozo and A. R. Secchi, Universidade Federal do Rio Grande do Sul*	Quantification of Valve Stiction *M. Jain, M. A. A. S. Choudhury, S. L. Shah, University of Alberta*
16:00	Closing Cerimony (Room I)		

Wedsneday April 5th,2006—Afternoon

Notes

Basic information about Gramado

City facts

Area Code: (54)
Voltage: 220V
Population: 28.593 inhabitants

Services

Municipal City Hall of Gramado: +55 (54) 3286-0200
Tourism Information: +55 (54) 3286-1475
Bus Station: +55 (54) 3286-1302
São Miguel Hospital: +55 (54) 3286-1155
Money Exchange:
American Dollar and Euro: can be exchanged at Bank Agencies

- BANCO DO BRASIL. R. Garibaldi, 339.
- BANCO BRADESCO. Av. das Hortênsias, 1929.
- HSBC BAMERINDUS. R. Garibaldi, 445.
- BANCO ITAÚ. Av. Borges de Medeiros, 2468
- BANCO SANTANDER MERIDIONAL. Av. Borges de Medeiros, 2581.

Other Currencies:

- BMMZ: Rua Garibaldi, 491.

Attractions

Paragliding

The sport is one of the hang gliding modalities and arrived in Brazil in 1989; a year later it could be seen in the skies of Rio Grande do Sul. Since then the techniques and gear have been evolving, allowing ever better performances. Age or physical type don't matter for those wishing to learn to "fly" on a paraglider.
The greatest excitement of the flight is in the combination of the right techniques with the Nature factors. It is possible to fly without engine, for long distances, and at great heights – two or three thousand meters, for example. What determines the duration of a flight is the climate conditions, and it should be possible to remain flying for up to ten hours.

Mini World

Miniature city with replicas of castles and homes in typical European style, mills, squares, railways and cascades. The miniature city is featured permanently at Horácio Cardoso Street with Pedro Candiago Street, and is open to the public Tuesday to Sunday from 1pm to 5pm.

CTG Rodeio Velho Museum or Museum of the Gaúcho Serrano

The only museum in the State dedicated exclusively to show the habits of the gaúcho serrano. It was organized by Lúcio and Cilda Petersen for 50 years, and brings rare pieces from the time of the Farroupilha Revolution and the so called Leather Era. In total there are over 1,500 objects registered. The museum is located at Rua Augusto Zatti, 55. It is open to visitors twice a month – every first and second Thursday – from 8pm to 10pm.

Perfume Museum

The first of this kind in the Country. There the visitor can know the world perfumery classics. The place has around 450 bottles of the main international perfumes, with data on the composition, manufacturer, history and curiosities. Besides the Museum, there is also a shop and a perfume factory. It also sells sachets, soaps, shampoos and conditioners. The Perfume Museum is located at Hortênsias Avenue, 3662 and opens daily, including weekends and public holidays, from 9am to 6pm.

Santa Claus Village

Created by Oscar Knorr in 1940, there's a Santa's House, a wood and the Vale dos Quilombos observatory. It is on Bela Vista Street and is open for public visiting from Monday to Friday, from 2pm to 9pm and on weekends from 10am to 9pm.

Shopping

Colonial Furniture: Shops in the city center and on the road to Canela.
Crystals: There are crystal pieces of all types, formats and sizes. Shop opens from 9am to 7pm. At the back there is a demonstration of crystal making, from 9am to 7pm. Access through the RS-115, towards Taquara, km 37. More information" +55 (54) 3288-1124.
Chocolates: At the city center, many factories and shops such as Caracol, Lugano, Planalto and Prawer sell the famous "Gramado chocolate" in bars, branches, bombons, truffles, liqueurs and different shapes for children. You must try them!

Day travels around GRAMADO / Social Activities for accompanying persons

Tour Gramado and Canela
Built on small Europeans cities atmosphere, Gramado and Canela have a very special way of life.
Gramado: "Lago Negro", panoramic tour in downtown. "Aldeia do Papai Noel" and mash and leather factory.
Canela: "Mundo a Vapor", lookout of the park "Laje de Pedra", Chocolate factory, Cathedral Rock, panoramic tour in downtow. "Castelinho Caracol" and "Parque do Caracol".
Duration: 1 day
Include: transportation and guide (do not include the entrance ticket).

Price: USD 15.00

Tour Grape and Wine
Discover the influence of the Italian immigrants, walkding around the "Região dos Vinhedos". Know the mystery of the excellent vines elaborated at "Serra Gaúcha" and "Nova Petropolis".
Nova Petrópolis: Praça das Flores e Labirinto Verde.
Caxias do Sul: Church of São Pelegrino.
Bento Gonçalves: Panoramic tour in downtown and visitation to a Winegrowing with degustation.
Garibaldi: Panoramic tour in downtown.
Carlos Barbosa: Factory and Show Room of Tramontina.
Duration: 1 day.
Include: transportation, guide, lunch and degustation.

Price: USD 33.00

Tour Maria Fumaça and Colônia de São Pedro
Return to the past at Maria Fumaça train, listening the typical song, tarantela, schows, cheese degustation and champagne. Train trip at cities Bento Gonçalves and Carlos Barbosa. Visitation to the Sao Pedro Colony at Bento Gonçalves, where you will know the Project "Caminhos de Pedra", colons houses and the Cantina Strapazzon (where were filmed the movie "O Quatrilho"). **Duration**: 1 day.
Include: transportation, guide, train ticket and Colony ticket.

Price: USD 43.00

Tour "Colonial roots from Gramado"
At this walk we will know the place where have started the population of Gramado – "Linha Nova" and "Linha Bonita". We will also visit the "Casa Centenaria", Erva Mate Marcon factory, the Molino Cavichion, the rural museum Fiorezze and, ate the end, a degustation of colinial products and season fruits offered by Mrs. Zulmira.
Duration: ½ day.
Include: transportation, guide, entrance ticket and snack.

Price: USD 28.00

Day travels around GRAMADO / Social Activities for accompanying persons

Tour of the parks

A visitation to"Parque da Ferradura" is obligated to people who want to enjoy an incredible view. At the "Teleférico", we are going to see the "Cascata do Caracol" under another unbelievable angle. The lunch is included. At Alpen Park, 630m going down the mountain in the middle of the nature with incredible view. The "Parque das Sequóias" is famous because of the trees that gave name to the park, but it also can be an opened museum of coniferas. At the end, a visit to the Automobile Museum.

Duration: 1 day

Include: transportation, guide, lunch,entrance ticket ("Parque da Ferradura and Sequaois") entrance tax to the Teleferico and Alpen Park.

Price: USD 33.00

Tour Linha 28 Ecológico

At this walk you will know the refuge of the family Sperry, a place surrounded by beautiful "cachoeiras" and a fruit pomar. At the Conty family property, you will know the history of the first immigrants, "cachaçaria" and lunch with tradtitional polenta.

Duration: 1 day

Price: USD 28.00

Tour Itaimbezinho

A spectacular view of the biggest canyon of the latin american, located at the national parque of Aparados da Serra, in Cambará do Sul.

Tip: Use tennis shoes and confortable clothes

Include: transportation and guide.

Duration: 1 day

Price: USD 38.00

Rafting

Rafting boats tour will introduce you to wild Paranhana's River sinouus ways. This tour is recomended for those who enjoy heavy sports but with all necessary safe equipments.

Duration: ½ day

Include: transportation, equipment.

Price: USD 25.00

Day travels around GRAMADO / Social Activities for accompanying persons

Trekking through Lageana Vail Waterfalls

Located near “Caracol Cascade”, Lageana’s Vail offers a vast ground of beautifull views, extense sort of animals and vegetation.

Include: tranportation, entrance ticket, tour guide.
Duration: ½ day.

Price: USD 25.00

By Night

Gaucha’s Night

At Garfo and Bombacha Barbecue Restaurant, you will enjoy traditional barbecue dinner (made under the ground with special flavor!). The welcome drink is made of “chimarrão” and special drinks all home made. After dinner, dance presentation of our best folkloric and fandango group. **Include**: transportation, dinner, show and guide. **Duration**: approximately 3 hs.

Price: USD 22.00 (the drinks are not included, it is similar to conference banquet. But ADCHEM banquet includes drinks)

German’s Night

At Nova Petrópolis, dinner with the top of the german culinary. You will enjoy a buffet
with famous dishes and a complete colonial Coffee.
Include: transportation, dinner, show and guide.
Duration: approximately 4 hours.

Price: USD 30.00

Switzerlands’ Night

Typical Swiss gastronomy, fondue trio (cheese, meet and chocolate) is a delicious and romantic option at the mountains.

Include: transportation, dinner, show and guide.
Duration: approximately 3 hs.

Price: USD 22.00


Mapa Turístico de Gramado
1 - Pórtico via Nova Petrópolis
2 - Pórtico via Taquara
3 - Lago Negro (Black Lake)
4 - Praça das Comunicações (Communication Square)
5 - Lago Joaquina Rita Bier (Joaquina Rita Bier Lake)
6 - Mini Mundo (Mini-World)
7 - Rótula das Bandeiras (Flags Roundabout)
8 - Rodoviária (Bus Station)
9 - Igreja do Relógio (Clock Church)
10 - Centro de Cultura (Culture Center)
11 - Igreja Matriz São Pedro (São Pedro Cathedral)
12 - Palácio dos Festivais (Festival Palace)
13 - Rua Coberta (Covered Street)
14 - Praça Major Nicoletti (Major Nicoletti Square)
15 - Informações Turísticas (Touristic Info)
16 - Prefeitura Municipal (City Hall)
17 - Aldeia do Papai noel (Santa Claus Village)
18 - Belvedere Vale do Quilombo
19 - Centro de Eventos da UFRGS (UFRGS Convention Center)
20 - Barragem dos Pinheiros (8km)
21 - Parque Mundo Encantado (Enchanted World Park)
22 - Museu do Perfume (Perfume Museum)
23 - Museu do Chocolate (Chocolate Museum)
24 - Museu do Automóvel (Automobile Museum)
25 - Museu Medieval (Medieval Museum)
26 - Museu do Piano (Piano Museum)
27 - Cristais de Gramado (Gramado's Crystal)
28 - Expogramado
29 - Gramado Club Golf
30 - Kartódromo
31 - Sierra Park
32 - Praça das Comunicações
33 - Hotel Serrano
Canela (7km)
Taquara (45km)
Nova Petrópolis (36km)
RS 235
RS 115
Av. Borges de Medeiros
Av. das Hortênsias
Rua São Pedro
Rua Horácio Cardoso
Rua F. G. Bier
Rua Piratini
Rua Demétrio P. dos santos
Rua Antônio Accorsi
Rua Nações Unidas
Rua João Leopoldo Lied
Rua da Carnière
Rua São Lucas
R. Garibaldi
R. Augusto Zatti
R. Madre Verônica
R. João Petry
R. Emílio Sorgetz
R. Cel. João Corrêa
Rua Leopoldo Rosenfeldt
Rua Pedro Candiago
Rua da Paz
R. Casa da Juventude
R. 25 de Julho
A. J. Renner
R. Tristão de Oliveira
Estrada Linha Bonita
R. Sen. Salgado Filho
Rua D. Pedro I
Gramado
faz bem!