

August 28, 2003

9:00-10:00

	Plenary Lecture Positive random systems with application to investment <i>David G. Luenberger</i>
--	--

10:00-10:30

Coffee Break

Room CAMPIDOGLIO

Room COLOSSEO

10:30-11:00
11:00-11:30
11:30-12:00
12:00-12:30

Continuous and hybrid Petri nets <i>Chairmen: A. Giua and M. Silva</i>
Unforced continuous Petri nets and positive systems <i>M. Silva and L. Recalde</i>
Reachability graph for autonomous continuous Petri nets <i>R. David and H. Alla</i>
Modelling hybrid positive systems with hybrid Petri nets <i>M. Gribaudo and A. Horvath</i>
Simulation and control of a bottling plant using first order hybrid Petri nets <i>R. Armosini, A. Giua, M.T. Pilloni and C. Seatzu</i>

Positive modelling and control of biological systems I <i>Chairmen: G. Bastin and J.L. Gouzé</i>
The basic reproduction number in a multi-city compartmental epidemic model <i>J. Arino and P. van den Driessche</i>
Stability analysis of a metabolic model with sequential feedback inhibition <i>Y. Chitour, F. Gognard and G. Bastin</i>
Differential systems with positive variables <i>J.L. Gouzé</i>
Positivity and invariance properties of nonisothermal tubular reactor nonlinear models <i>M. Laabissi, M.E. Achab, J.J. Winkin and D. Dochain</i>

12:30-14:30

Lunch

14:30-15:00
15:00-15:30
15:30-16:00

Max-plus algebra I <i>Chairmen: L. Hardouin and S. Gaubert</i>
Min-plus and max-plus system theory applied to communication networks <i>J.Y. Le Boudec and P. Thiran</i>
Reachability and invariance problems in max-plus algebra <i>S. Gaubert and R. Katz</i>
Modelling of urban bus networks in dioids algebra <i>S. Lahaye, L. Houssin and J.L. Boimond</i>

Positive modelling and control of biological systems II <i>Chairmen: G. Bastin and J.L. Gouzé</i>
A feedback perspective for chemostat models with crowding effects <i>P. De Leenheer, D. Angeli and E.D. Sontag</i>
Positive control for a class of nonlinear positive systems <i>L. Mailleret</i>
Competitive and cooperative systems: a mini review <i>M.W. Hirsch and H.L. Smith</i>

16:00-16:30

Tea Break

16:30-17:00
17:00-17:30
17:30-18:00
18:00-18:30

Max-plus algebra II <i>Chairmen: L. Hardouin and S. Gaubert</i>
Modal logic and dioids <i>C.P. Pessanha and R. Santos-Mendes</i>
Monotone linear dynamical systems over dioids <i>L. Truffet</i>
Optimal control for (max,+)-linear systems in the presence of disturbances <i>M. Lhommeau, L. Hardouin and B. Cottonceau</i>
Note on structural properties and sizes of eigenspaces of min-max functions <i>Q. Zhao and D. Zheng</i>

Positivity and stability <i>Chairman: T. Damm</i>
Small-gain theorems for predator-prey systems <i>P. De Leenheer, D. Angeli and E.D. Sontag</i>
Positive particle interaction <i>U. Krause</i>
Stability of linear systems and positive semigroups of symmetric matrices <i>T. Damm</i>

August 29, 2003

9:00-10:00

Plenary Lecture	Rational positive systems for reaction networks
	<i>Jan H. van Schuppen</i>

10:00-10:30

Coffee Break

Room CAMPIDOGLIO

Room COLOSSEO

10:30-11:00
11:00-11:30
11:30-12:00
12:00-12:30

Feedback control and stabilization <i>Chairman: A. De Santis</i>
State feedback set stabilization for a class of nonlinear systems <i>L. Imstrand and B.A. Foss</i>
The character of an idempotent-analytic nonlinear small gain theorem <i>H.G. Potrykus, F. Allgower and S. Joe Quin</i>
Positive systems with nondecreasing controls. Existence and well-posedness <i>S. Walczak and D. Idczak</i>
Reachability and controllability of positive linear discrete time systems with time delays <i>G. Xie and L. Wang</i>

Reachability and controllability <i>Chairmen: V.G. Rumchev and R. Bru</i>
Some problems about structural properties of positive descriptor systems <i>R. Bru, C. Coll, S. Romero-Vivo and E. Sanchez</i>
Positive linear systems reachability criterion in digraph form <i>V.G. Rumchev</i>
A characterization of reachable positive periodic descriptor systems <i>B. Cantò, C. Coll and E. Sanchez</i>
A PLDS model of pollution in connected water reservoirs <i>S.P. Kostova</i>

12:30-14:30

Lunch

14:30-15:00
15:00-15:30
15:30-16:00

2D systems <i>Chairman: E. Valcher</i>
On the positive reachability of 2D positive systems <i>E. Fornasini and M.E. Valcher</i>
Nonlinear positive 2D systems and optimal control <i>D. Idczak and M. Mayewski</i>
Some recent developments in positive 2D systems <i>T. Kaczorek</i>

Nonnegative matrices I <i>Chairmen: R. Bru and V.G. Rumchev</i>
Digraph-based conditioning for Markov chains <i>S.J. Kirkland</i>
Paths and cycles in the totally positive completion problem <i>C. Jordan and J.R. Torregrosa</i>
Completion problems for positive matrices with minimal rank <i>R. Cantò and A.M. Urban</i>

16:00-16:30

Tea Break

16:30-17:00
17:00-17:30
17:30-18:00

Realization <i>Chairman: L. Farina</i>
Linear positive systems and phase-type representations <i>C. Commault</i>
On nonnegative realizations <i>K.H. Forster and B. Nagy</i>
Nonnegative infinite Hankel matrices having a finite rank <i>A. Morettin</i>

Nonnegative matrices II / Applications I <i>Chairman: A. De Santis.</i>
Bidiagonal factorizations of totally nonnegative matrices <i>S. Fallat</i>
Estimation and strong approximation of hidden Markov models <i>L. Gerencser and G. Molnar-Sascka</i>
Countercurrent double-pipe heat exchangers are a special type of positive systems <i>A. Zavala-Rio, R. Femat and R. Romero-Mendez</i>

20.00

Social Dinner

August 30, 2003

Room CAMPIDOGLIO

Applications II

Chairman: *A. De Santis*

9:30-10:00

Positivity for matrix systems: a case study from quantum mechanics
C. Altafini

10:00-10:30

A simple food chain model with delay
M. Cavani and S. Romero

10:30-11:00

Blending positive matrix pencils with economic models
T.P. de Lima

11:00-11:30

A paradigm for derivatives of positive systems
B. Heidergott

11:30-12:00

12:00-12:30

12:30-13:00

Room COLOSSEO

Modelling and identification of biological systems I

Chairman: *M. Saccomani*

Parameter identifiability of nonlinear biological systems
M. Saccomani, S. Audoly, G. Bellu and L. D'Angiò

Towards whole cell "in silico" models for cellular systems: model set-up and validation
A. Kremling, K. Bettenbrock, S. Fischer, M. Ginkel, T. Sauter and E. Gilles

Guaranteed parameter estimation for cooperative models
M. Kieffer and E. Walter

A reconstruction algorithm for gene regulatory sparse networks using positive systems
I. Mogno

Coffee Break

Modelling and identification of biological systems II

Chairman: *M. Saccomani*

Modelling and simulation of genetic regulatory networks
H. de Jong

Qualitative analysis of regulatory graphs: a computational tool based on a discrete formal framework
C. Chaouiya, E. Remy, B. Mossè and D. Thieffry