

P A R T 2

TABLE OF CONTENTS

GAMES

Fuzzy Games
Aubin, J.P. *

On the Marginal Value of an Antagonistic Game
Hartung, J. 1

Gaming Modelling of Interrelations Among
Organizational Units
Levien, R./Sokolov, V./Zimin, I. *

OPTIMAL DESIGN

Optimization of Structural Elements
Armand, J.-L. 9

The Policy Iteration Method for the Optimal Stopping of a
Markov Chain with an Application
Van Hee, K.M. 22

Algorithmes pour un Problème Inverse Discret de Sturm-Liouville
Morel, P. 37

Etude de Problèmes d'Optimal Design
Murat, F./Simon, J. 54

Une Formule de Hadamard dans des Problèmes d'Optimal Design
Palmerio, B./Dervieux, A. 63

Problèmes Inverses de Valeurs Propres
Rousselet, B. 77

COMPUTATIONAL TECHNIQUES

A Decomposition Technique in Integer Linear Programming
Giulianelli, S./Lucertini, M. 86

An Integrated Theory of Problems as an Algebraic Base for
Complexity Understanding and Automatic Problem Solving
Guida, G./Mandrioli, D./Paci, A./Somalvico, M. 98

Minimum Problems on Sets with Convergence and Parameter
Determination in Partial Differential Equations
Kluge, R. *

* paper not received

Choix d'une Base dans l'Approximation d'une Fonction Lemaire, J./Moriou, M./Pouget, J.	130
Implémentation Numérique en Filtrage Optimal Non-Linéaire: Algorithmes Parallèles et Comparaison avec d'autres Solutions Levieux, F.	151
Méthodes de Décomposition appliquées aux Problèmes de Contrôle Impulsionnel Maurin, S.	169
A Mixt Relaxation Algorithm Applied to Quasi-Variational Inequations Miellou, J.C.	192
An Efficient Algorithm for Minimization that Does not Require Analytic Derivatives Mifflin, R. *	
Eclatement de Contraintes en Parallèle pour la Minimisation d'une Forme Quadratique Pierra, G.	200
Application de la Méthode de Pénalisation aux Problèmes de Contrôle en Nombres Entiers Saguez, C.	219
Une Nouvelle Méthode de Décomposition des Grands Systèmes ou la Partition Précède l'Affectation Thuair, A./Malengé, J.P.	229
On the Multivariable Control of Nuclear Reactors Using the State Feedback Approach Tsafestas, S./Chrysochoides, N.	250
 <u>MATHEMATICAL PROGRAMMING</u>	
Un Algorithme de Minimisation de Fonctions Convexes avec ou sans Contraintes "l'Algorithme d'Echanges" Carasso, C.	268
A Remark on Multiplier Methods for Nonlinear Programming Cirinà, M.	283
Optimisation sans Contraintes: Construction d'une Famille d'Algorithmes à Convergence Quadratique par Linéarisation Denel, J.	293
Optimization in Large Partly Nonlinear Systems Drud, A.	312
A New Branch And Bound Approach for Concave Minimization Problems Horst, R.	330
Mathematical Programming and the Computation of Optimal Taxes for Environmental Pollution Control Jacobsen, S.E.	337
On Large Scale Linear Fractional Programs Kovács, Á./Stahl, J.	353

Some Remarks on Generalized Lagrangians Kurczyk, S.	362
Implicit Dynamic Equations Luenberger, D.G. *	
Subgradient Optimization, Matroid Problems and Heuristic Evaluation Maffioli, F.	389
Theoretical and Practical Aspects of Coordination by Primal Method Malinowski, K.B./Szymanowski, J.	397
On the Implementation of Reduced Gradient Methods Mukai, H./Polak, E.	426
Contribution to Dubovitsky and Milyutin's Optimization Formalism Rigby, L.	438
A Perturbation Theory Approach to Non-Linear Programming Thurber, J./Whinston, A.	454
 <u>OPTIMAL CONTROL DETERMINISTIC</u>	
An Introduction to Bounded Rate Systems Bruni, C./Koch, G./Germani, A.	471
Un Calcul Symbolique Non Commutatif pour les Asservissements Non Linéaires et Non Stationnaires Fliess, M.	496
The Numerical Design of Feedback Control Systems Containing a Saturation Element by the Method of Inequalities Gray, J.O./Al-Janabi, T.H.	510
Sur l'Approximation du Contrôle Optimal des Systèmes Gouvernés par des Equations Différentielles avec Retard par la Méthode de Différences Finies Lasiecka, I./Hatko, A.	522
Canonical Realizations of Transfer Operators Levan, N.	538
On Optimal Control Problems with Bounded State Variables and Control Appearing Linearly Maurer, H.	555
On the Optimal Control of Variational Inequalities Patrone, F.	560
Modelling and Control for Distributed Parameter Systems Pritchard, A.J./Crouch, P.E.	566
On Bang-Bang Control Policies Gonzalez, R./Rofman, E.	587
Optimal Control Problems in Sobolev Spaces with Weights. Numerical Approaches. Applications to Plasma Control and Time Delay Problems Simionescu, C.	603

On Optimal Parametric Control of Parabolic System Sokolowski, J.	623
On the Convergence of Balakrishnan's Method Zolezzi, T.	634
<u>OPTIMAL CONTROL STOCHASTIC</u>	
Minimum Variance Control of Discrete-Time Linear Stochastic System, Using Instantaneous Output Feedback Blanvillain, P./Favier, G.	636
Finding a Feasible Control for Real Process under Uncertainty Brdyś, M.	656
Infinite Dimensional Estimation Theory Applied to a Water Pollution Problem Curtain, R.F.	685
Numerical Solution of the Operator Riccati Equation for <u>the</u> Filtering of Linear Stochastic Hereditary Differential Systems Delfour, M.C.	700
On the Approximation of Time-Varying Stochastic Systems Genesio, R./Pomé, R.	720
Stabilizing Control for Linear Systems with Bounded Parameter and Input Uncertainty Gutman, S./Leitmann, G.	729
Application of the Optimal Control Theory with Distributed Parameters on a Searching Problem Hellman, O.	756
About Properties of the Mean Value Functional and of the Continuous Infimal Convolution in Stochastic Convex Analysis Hirriart-Urruty, J.B.	763
Evolution of Some Problems of Stochastic Control when the Discount Vanishes Lasry, J.M.	790
The Effect on Optimal Consumption of Increased Uncertainty in Labor Income in the Multiperiod Case Miller, B.L.	799
An Extension to Abstract Function Spaces of Recursive Minimum- Norm Estimation Algorithms via Innovations Mosca, E./Zappa, G. *	
Nonlinear Optimal Stochastic Control - Some Approximations when the Noise is Small Perkins, J.D./Sargent, R.W.H.	820
Asymptotic Behavior of Posterior Distributions for Random Processes under Incorrect Models Yamada, K.	831
 LIST OF AUTHORS	 847

P A R T 1

TABLE OF CONTENTS

INVITED SPEAKERS

Convexity Properties in Structural Optimization Fraeijs de Veubeke, B.	1
Environment and Some Problems of Optimization Marchuk, G.I.	13
Multiregional Population Projection Rogers, A./Ledent, J.	31

MEDICINE AND BIOLOGY

System Theoretic Control in Immunology Barton, C.F./Mohler, R.R./Hsu, C.S.	59
Optimisation des Processus de Fermentation en Continu Blum, J.	71
Structural Identifiability of Biological Compartmental Systems. Digital Computer Implementation of a Testing Procedure Cobelli, C./Lepschy, A./Romanin-Jacur, G.	88
Modélisation de la Marche en Vue du Calcul des Efforts sur l'Articulation Coxo-Femorale Bonnemay, A./Furet, J./Koukis/Sedel, L. *	
Stability Analysis of Predator-Prey Models via Liapunov Method Gatto, M./Rinaldi, S.	103
Détermination d'une Représentation des Noyaux de Volterra pour un Système Physiologique Non-Linéaire Gautier, M./Monsion, M./Sagaspe, J.P.	110
A Combinatorial Method for Health-Care Districting Ghiggi, C./Puliafito, P.P./Zoppoli, R.	116
Study of Waking-Sleeping Behaviour Using Automatic Analysis and Quantification Gottesmann, Cl./Lacoste, G./Rodrigues, L./Kirkham, P./ Rallo, J.L./Arnaud, Ch.	131
Self-Sustained Oscillations in the Jacob-Monod Mode of Gene Regulation Grossmann, Z./Gumowski, I.	145

* paper not received

Optimisation in the Modelling of Digestive Tract Electrical Signals Linkens, D.A.	155
Propagation Model of Bio-Electric Potentials through the Shells of the Brain Nicolas, P.	170
Implementable Policies for Improving the Biomass Yield of a Fishery Sluczanowski, P.W.R.	182
Dynamic Smoothing of E.E.G. Evoked Responses Vidal, J./Reisenfeld, S. *	
A Control and Systems Analysis of Artificial Instream Aeration Whitehead, P.G.	207
 <u>HUMAN ENVIRONMENT (WATER POLLUTION)</u>	
Modeling Dispersion in a Submerged Sewage Field Baron, G./Wajc, S.J./Spriet, J./Vansteenkiste, G.C.	229
The Identification and Adaptive Prediction of Urban Sewer Flows Beck, M.B.	246
The Use of Mixed Integer Programming for the Evaluation of Some Alternate Air Pollution Abatement Policies Escudero, L.F./Vazquez Muniz, A.	264
On the Use of Quasilinearization for the Solution of Sub-Problems in On-Line Hierarchical Control and its Application to a Water Distribution Network Fallside, F./Perry, P.F.	273
A Computer Algorithm for Solving a Reservoir Regulation Problem under Conflicting Objectives Fronza, G./Karlin, A./Rinaldi, S.	292
Optimal Pollution Control of a Lake Litt, F.X./Smets, H.	315
Modélisation et Identification d'une Relation Pluie-Débit - Le modèle "SEMOIS" Lorent, B.	331
A Mathematical Model for Analysis of Mountain Drainage Basins Morandi Cecchi, M.	350
Modelling of a Computer Controlled Open Channel Waste Water System Rennicke, K./Polak, E. *	
Optimal Sampling System for Estimating Geographical Distributions of Natural Resource and Environmental Pollution Taga, Y./Wakimoto, K./Ichimura, M.	363

HUMAN ENVIRONMENTS (SOCIOLOGY, URBAN SYSTEMS, PHYSICS, CHEMISTRY)

Investigation into the Use of the African Board Game, Ayo, in the Study of Human Problem-Solving Agbalajobi, F.B./Cooper, R.L./Sonuga, J.O.	368
Numerical Modelling of a Newly Discovered Powerful Molecular Laser Bui, T.D. *	
Catastrophe Theory and Urban Processes Casti, J./Swain, H.	388
Modelling and Simulation of the Mesoscale Mosaic Structure of the Lower Marine Trophic Levels Dubois, D.M.	407
Optimisation et Planification des Réseaux de Télécommunications Minoux, M.	419
World Models: A Case Study on Social Responsibility and Impact Rechenmann, F./Rivera, E./Uvietta, P.	431
A Mathematical Model for Pressure Swing Adsorption Sebastian, D.J.G.	440

HUMAN ENVIRONMENTS (ENERGY, WORLD MODELS)

A Four-Variable World System Gould, F.J.	455
The Application of Gradient Algorithms to the Optimization of Controlled Versions of the World 2 Model of Forrester De Jong, J.L./Dercksen, J.W.	470
A New Approach to Modelling in Planning of Electric Power Systems Kalliauer, A.	496
On the Optimization of Peat Burning Plants Kiukaanniemi, E./Uronen, P./Alander, O.	506
A Multi-Area Approach to the Economic Optimization of Electric Power System Rakić, R./Petrović, R./Rakić, M.	518

OPERATIONAL RESEARCH

Le Problème de la Multivalence dans le Travail Continu Bartoli, J.A./Trémolières, R.	537
Search and Montecarlo Techniques for Determining Reservoir Operating Policies Colorni, A./Fronza, G.	557
A Model of Many Goal-Oriented Stochastic Automata with Application on a Marketing Problem El-Fattah, Y.M.	570

The Forecast and Planning of Manpower with Implications to Higher Educational Institutions-Mathematical Models Friedman, M.	589
Etablissement Automatique des Tableaux de Marche et Feuilles de Service dans un Réseau de Transport Faure, R.	608
Construction Automatique des Horaires d'une Ligne d'Autobus Heurgon, E./Présent, M./Tarim, G.	622
Regional School Districting via Mathematical Programming De Giorgi, C./Tagliabue, G./Migliarese, P./Palermo, P.C.	637
On the Optimal Control of Natural Resource Use in the Neoclassical Economic Framework Haurie, A./Hung, N.M.	646
Computer Elaboration of Time-Table for Single Railway Line Jelaska, M.	657
An Interactive Implementation of Control Theory Techniques Applied to Pindyck's Model of the U.S. Economy Johnson, O.G./Mangin, X./Rhyne, J.R.	676
Control in Economy Based on Non-Price Information Ligeti, I./Sivák, J.	691
Modelling and Optimization Techniques in Accordance with the Information Requirements for Socio-Economic Development De Man, W.H.	705
Problem Reduction and for Graphs and Dynamic Programming Revisited Martelli, A./Montanari, U. *	
Optimum Allocation of Investments in a Two-Region Economy Nicoletti, B./Pezella, F./Raiconi, G. **	
Population Planning - A Distributed Time Optimal Control Problem Olsder, G.J./Strijbos, R.C.W.	721
On the Linear Regulator Tracking Problem and its Application to Econometrics Terceiro, J. *	
On the Optimality of a Switch-Over Policy for Controlling the Queue Size in an M/G/1 Queue with Variable Service Rate Tijms, H.	736
Optimization of Resource Allocation in R+D Projects Waśniowski, R.	743
Optimal Ocean Navigation De Wit, C.	748

** This paper was received during production and has been included
at the end of the volume (page 834).

The Optimization Techniques Used for Some Transportation Network
Planning

Yajima, K. *

Optimization Methods in Large Scale Scheduling Problems

Zimin, I.*

ASSOCIATED SOFTWARE PROBLEMS

Design and Application of an Interactive Simulation Language Alfonseca, M.	757
A Functional Package for Monitoring Branching Methods in Combinatorial Optimization Barthès, J.P.A.	769
SCORPION: Système de Modélisation et d'Optimisation Delpuech, D./Gires, A./Pere-Laperne, B./Soubies, M.	774
An Interactive System for Modeling Galligani, I./Molledo, L.	794
Optimal Allocation of Telephone Cable Drums to Construction Sites Kfir, M./Resh, M./Siany, E./Rodoy, Y. *	
A Network Combining Packet Switching and Time Division Circuit Switching in a Common System De Smet, J./Sanders, R.	808
Optimum Allocation of Investments in a Two-Region Economy Nicoletti, B./Pezella, F./Raiconi, G.	834
LIST OF AUTHORS	849