

## **CONTRIBUTIONS AT THE VIII INTERNATIONAL CONFERENCE ON OPERATIONS RESEARCH HELD IN LA HABANA 25-29, 2008.**

### **INVITED LECTURES PLENARY LECTURES**

CHARLES BOUVEYRON (FRANCE): Lagrangian Methods for equilibrium problems: an overview on high-dimensional data classification with model based techniques.

HELMUT GFRERER (AUSTRIA): On a combined penalty and barrier approach for a class of infinite dimensional optimization problems.

ALFREDO IUSEM (BRAZIL): Proximal point and Augmented Lagrangean Methods for equilibrium problems.

HANS KEIDING (DENMARK): The probability of factor price equalization.

PIERRE-LOUIS LIONS (FRANCE): Analysis, models and simulations.

WERNER ROEMISCH (GERMANY): Scenario reduction in stochastic programming.

GERARDO RUBINO (FRANCE): Transient analysis of markovian queues.

GEORGES ZACCOUR (CANADA): Optimal pricing and advertising policies for an entertainment event.

### **TUTORIALS**

XAVIER GUYON (France): Estadística espacial.

### **MINICOURSES**

LUIS CAFFARELLI(USA) Problems involving anomalous diffusion I.

LUIS CAFFARELLI (USA) Problems involving anomalous diffusion II.

LAURENT DESVILLETTES (France): Population dynamics via infinite dimensional reaction-diffusion.

HISAO FUJITA YASHIMA (Italy): Ecuaciones estocásticas de la dinámica de poblaciones con la difusión en un territorio.

PIERRE-LOUIS LIONS (France): On mean field games.

### **CONTRIBUTED PAPERS**

#### **OBTAINING OF MORTALITY TABLES IN THE CLASSROOM**

F. Abad-Montes, M. Huete-Morales and M. Vargas-Jimenez

Department of Statistics and Operations Research. Faculty of Sciences. University of Granada, Granada, Spain.

#### **POLITICAL GAMES AND THE USE OF LINEAR COMPLEMENTARITY PROCESS IN ITS SOLUTION**

Elsayed Abdel-Aziz\*, J. Guddat\*\* and Bin Elshabani\*\*\*

\*Faculty of Engineering, Cairo University, Egypt, \*\*Humboldt University Berlin, Section Mathematic, Germany, \*\*\*Abdel Aziz King University, Saudi Arabia.

#### **INTEGER LINEAR PROGRAMMING OBJECTIVE – CONSTRAINT ZOOMING THEORY**

Elsayed Abdel-Aziz and Hesham Osman

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#### **APPLICATIONS OF INTEGER LINEAR PROGRAMMING IN ARCHITECTURE**

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#### **STABILITY INDEX OF INTERACTIVE FORMS**

Joseph Abdou

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#### **COMPUTER AIDED SYSTEM FOR OPTIMAL PARAMETRIC**

#### **SYNTHESIS**

O.V.Abramov and Y.V.Katueva

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#### **AN INVARIANT SET GENERATED BY THE DOMAIN TOPOLOGY FOR PARABOLIC SEMIFLOWS WITH SMALL DIFFUSION**

Nils Ackermann, Thomas Bartsch and Petr Kaplicky

Instituto de Matemáticas, Universidad Nacional Autónoma de Mexico, Mexico.

#### **DIFFERENCE ESTIMATION BETWEEN OLD - WELL ESTABLISHED AND EUROPEAN NEW - FAST GROWING CAPITAL MARKETS**

Zdravka Aljinovic

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#### **ASYMPTOTIC PROPERTIES OF THE ESTIMATORS OF THE COEFFICIENTS OF A JUMP DIFFUSION MODEL**

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THE CONSTRUCTION OF BEAM AND PLATE FINITE ELEMENTS USING WAVELET BASIS FUNCTIONS

Liliam Alvarez\*, María Teresa Martín\*\* and Victoria Vampa

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USE OF FREE SOFTWARE FOR MATHEMATICAL AND STATISTICAL TRAINING IN PHARMACY'S DEGREE COURSE

A. Arcos, J. M. Contreras, M.L., Gámiz, A., González, M.D. Martínez, J.F. Muñoz, J.F., Y. Román and M. M. Rueda

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MULTIVARIATE RISK-RETURN DECISION MAKING WITHIN DYNAMIC ESTIMATION

Josip Arnerić

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THE EFFECTS OF THE INFORMATION FLOW ON THE STOCK MARKET VOLATILITY: AN EMPIRICAL TEST

André Assis de Salles

Universidad Federal de Rio de Janeiro, Brazil.

HEURISTICAS DE REORDENAMIENTO EN MATRICES CON ESTRUCTURA PARTICULAR

Marta Lourdes Baguer y Alibet Kakes

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DATA ENVELOPMENT ANALYSIS AND DISCRIMINANT ANALYSIS IN EFFICIENCY ASSESSMENT OF AGRICULTURAL PRODUCTION

V. Bahovec and L. Neralić

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REDUCCIÓN DEL ESPACIO DE BUSQUEDA PARA PROBLEMAS DE CALENDARIZACIÓN ALPLICANDO UN ALGORITMO GENÉTICO MULTIOBJETIVO

Magdalena Bandala\*, María A. Osorio-Lama\*\*y Alba M. Sánchez G\*\*

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.REAL POLYNOMIAL EQUATION SOLVING AND APPLICATIONS

Bernd Bank\*, M. Giusti\*\*, J. Heintz\*\*\*, L. Lehmann\* and Luis Miguel Pardo\*\*\*\*

\*Humboldt-University Berlin, \*\*Ecole Polytechnique, Paris-Palaiseau, \*\*\*Universidad de Buenos Aires and Universidad de Cantabria

MELD AS A PREDICTOR OF LONG TERM MORTALITY IN LIVER TRANSPLANTATION LIST- A SURVIVAL TREE ANALYSIS

Samanta Basto\*, Emilia Matos do Nascimento\*\*, Joaquim Ribeiro\*\*\* and Basilio de Braganca Pereira\*\*\*\*

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OBTAINING SHOCK SOLUTIONS VIA MASLOV.S THEORY AND COLOMBEAUS ALGEBRA FOR CONSERVATION LAWS WITH ANALYTICAL COEFFICIENTS

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OPTIMIZADOR DE RUTAS PARA EL TRANSPORTE DE CARGA HOMOGENEA

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NASH EQUILIBRIUM EXISTENCE IN DISCONTINUOUS GAMES WITHOUT QUASI-CONCAVITY: A NEW APPROACH

Philippe Bich

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THE APPLICATION OF THE FUZZY SETS TO THE EVALUATION OF THE OPERATION RISKS

Blanca Blanco Campins

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PORTFOLIO OPTIMIZATION BASED ON THE CONDITIONAL VALUE AT RISK (CVAR) OF SIMULATED SCENARIOS

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SENSITIVE ANALYSIS OF EXTERNAL INFLUENCES ON CONTAINER HANDLING COST

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.UN ESTUDIO DE CLASES DE ESTIMADORES BASADOS EN UNA RAZON

Carlos N. Bouza\*, Dante Covarrubias\*\* y Uriel Cruz\*\*

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ESTIMATING THE DIFFERENCE OF MEANS WITH IMPUTATION OF THE MISSING OBSERVATIONS

Carlos Bouza\* and Guohua Zou\*\*

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ON THE ROLE OF MPCC-LICQ WHEN SOLVING BILEVEL PROGRAMS BY THE FRITZ-JOHN RELAXATION

Gemayqzel Bouza Allende\* and Georg Still\*\*

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A GENERALIZATION OF THE EIGENVECTOR METHOD FOR INCOMPLETE PAIRWISE COMPARISON MATRICES

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COMBINING MARKOV SWITCHING MODELS AND THE DETECTION OF CHANGE-POINTS WITH THE SOM ALGORITHM TO EXPLAIN A TEMPORAL PROCESS

Marie-Therese Boyer-Xambeu\*, Ghislain Deleplace\*\*, Patrice Gaubert\*\*\*, Lucien Gillard\*\*\*\* and Madalina Olteanu\*\*\*\*\*

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ANALYSIS, VIA MULTIOBJECTIVE PROGRAMMING, OF THE IMPACT OF THE REDUCTION OF THE WEEKLY WORKING HOURS ON THE EMPLOYMENT RATE

Rafael Caballero Fernandez\*, Jesus Sanchez Fernandez, Trinidad Gomez Nunez and Julian Molina Luque

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REACTION-DIFFUSION ELLIPTIC EQUATIONS AND MINIMAL SURFACES

Xavier Cabré

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MATHEMATICAL MODELATION FOR THE FEEDING OF THE BOVINE LIVESTOCK

Yamila Caridad Camero Reinante, Teresita Sanchez Navarro, Manuel Cortés Cortés, Alejandro Gonzales Pujol

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COUNTING KNIGHT'S TOURS THROUGH THE RANDOMIZED WARNSDORFF RULE

Hector Cancela\* and Ernesto Mordecki\*\*

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COMBINING UNSUPERVISED AND SUPERVISED NEURAL NETWORKS ANALYSIS IN GAMMA RAY BURST PATTERNS CLASSIFICATION

Jose Carvalho\*, Rubens Oliveira\*, Basílio de Bragança Pereira\*\* and Calyampudi R Rao\*\*\*\*

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ECUACION DE RICCATI PARA LA MATRIZ DE DISPERSION EN MEDIOS PERIODICOS NO HOMOGENEOS

Luis Orlando Castellano Perez\* y Ana Paula Neves da Fonseca\*\*

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FLOW CONTROL IN THE PRESENCE OF SHOCKS

Carlos Castro, Francisco Palacios and Enrique Zuazua

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FORECASTING THE DIRECTION OF CHANGES IN CROATIA'S INDUSTRIAL PRODUCTION WITH ICI AND CROLEI Mirjana Ćizmesija and Vlasta Bahoveć

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USE OF BAYESIAN NETWORKS OBTAINED BY PARTICLE SWARM OPTIMIZATION FOR HIGH BLOOD PRESSURE DIAGNOSIS

Maria del Carmen Chavez, Gladys Casas, Jorge Moreira, Emilio Gonzalez, Rafael Bello, Ricardo Grau  
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ESTIMATION IN A STOCHASTIC SIR MODEL WITH CONTACT TRACING

Stephan Clemenccon\*, Chi,T.V.\*\* and Hector de Arazoza\*\*\*,

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EXISTENCE OF FINANCIAL EQUILIBRIA IN A MULTI-PERIOD STOCHASTIC ECONOMY

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DESARROLLO DE UN SISTEMA DE GESTIÓN DE INVENTARIO. EJEMPLO DE APLICACIÓN EN UNA ENTIDAD COMERCIALIZADORA

Julio A. Corzo Bacallao, Manuel Torres Gemeil, Mirtha C. Lugo Gonzalez

DYNAMICAL EQUILIBRIUM, TRAJECTORIES STUDY IN AN ECONOMICAL SYSTEM. THE CASE OF THE LABOR MARKET

Marie Cottrell, Patrick Letrémy, Patrice Gaubert, and Joseph Rynkiewicz

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COVERAGE PROCESSES ON SPHERES AND CONDITION NUMBERS FOR LINEAR PROGRAMMING

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RESOURCE SCHEDULING IN GARBAGE COLLECTION

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ESTIMACIÓN DE PARÁMETROS EN DIFUSIONES CON SALTOS A PARTIR DE OBSERVACIONES DISCRETAS USANDO FUNCIONES ESTIMANTES

Miraine Davila Felipe

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MODELING HIV-AIDS IN CUBA: ANALYSIS OF NON LINEAR MODELS

Hector de Arazoza Rodriguez\*, Rachid Lounes\*\*, Gonzalo Joya Caparros\*\*\*, Jorge \* and Aymee Marrero Severo\*

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MODELING DENGUE FEVER: AN OVERVIEW AND SOME WORKING IDEAS

Hector De Arazoza Rodriguez, Andres Sanchez Perez and Teresita Noriega Sanchez

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PRICE DYNAMICS ON A STOCK MARKET WITH ASYMMETRIC INFORMATION

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CLASSIFICATION BY MEANS OF ANT COLONY AND PARAMETERS CONFIGURATION  
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AUTOMATIC LINEAR MODEL SELECTION FOR A LEAST SQUARES DATA FITTING PROBLEM WITH  
CONTINUOUSLY DIFFERENTIABLE PIECEWISE DEFINED MODELS  
Carmen Díaz Lorenzo y Fernando Raúl Rodríguez Flores

MODELLING OF A GREENHOUSE SYSTEM BY MEANS OF PARAMETER ESTIMATION WITH HOPFIELD NEURAL  
NETWORKS  
Samir Didi\*, Miguel Atencia\*\*, Esther García-Garaluz\*, Gonzalo Joya\*\*, Abdeslam Lachhab\*,  
Abdelali Eddahak\*, Latifa Ezzine\*, Benachir Bouchikhi\*

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ABOUT INSENSITIZING CONTROLS FOR THE HEAT EQUATION  
Luz de Teresa

THE TWO-DIMENSIONAL KELLER-EGEL MODEL AFTER BLOW-UP  
J. Dolbeault\*, C. Schmeiser  
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A NONLINEAR PROGRAMMING APPROACH FOR SCHEDULING PROBLEMS IN PORTS  
Joao Dorneles Lauro, Fabio Dias Fagundez and Adilson Elias Xavier  
Universidade Federal do Rio de Janeiro, Rio de Janeiro, Brazil

ON THE MAXIMUM AND MINIMUM RADIUS PROBLEMS OVER A POLYHEDRAL SET  
R.Enkhbat and A. Bayrbaatar  
National University of Mongolia, Mongolia.

The School of Mathematics and Computer Sciences  
TOWARD A RATIONALITY OF DECISION BASED ON THE LANGUAGE: THEORETICAL LINKS AND  
EXPERIMENTAL OF THE COMPENSATORY FUZZY LOGIC, THE EXPECTED UTILITY  
THEORY AND PROSPECTS  
Rafael Espin Andrade

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MUSICAL GENRE RECOGNITION AND CLUSTER ANALYSIS  
Miraidy Espinosa Piñeiro  
HARDY-LIKE INEQUALITIES AND APPLICATIONS  
Maria J. Esteban  
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A POLYNOMIAL TIME ALGORITHM FOR THE CONTEXT FREE SATISFIABILITY PROBLEM  
Alina Fernandez Arias and Fernando Rodriguez Flores  
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UN ALGORITMO PARA LA DETECCIÓN DE CASOS EXCEPCIONALES BASADO EN EL MODELO DE CONJUNTOS  
APROXIMADOS DE PRECISIÓN VARIABLE (VPRS)  
Alberto Fernández Oliva\*, Miguel Abreu Ortega\*, Raúl Delgado de la Cruz\* Sergio Mañón Espino\*\*  
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PATENT LICENSING IN A COURNOT DUOPOLY FROM HIGH COST FIRM TO LOW COST FIRM  
Fernanda A. Ferreira  
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ENDOGENOUS LEADER-FOLLOWER RELATIONS WHEN DEMAND IS UNCERTAIN  
Flávio Ferreira and Fernanda A. Ferreira  
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PUBLIC GOODS PROVISION: GENERAL VERSUS LINDAHL EQUILIBRIUM  
Monique Florenzano  
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ALGORITMO PARA LA GENERACIÓN ALEATORIA DE MATRICES BOOLEANAS INVERSIBLES  
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DESCRIPTIVE ANALYSIS OF TIME SERIES  
Antonio Miguel Fuentes Jiménez, Miguel Ángel Montero Alonso and Juan Antonio Marmolejo Martín,  
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GLOBAL OPTIMIZATION TECHNIQUES FOR SOME OPTIMIZATION PROBLEMS ON STIEFEL MANIFOLDS  
Janos Fülep  
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SMALL DATA EXISTENCE FOR THE BOLTZMANN EQUATIONS IN  $\square_1$   
Rafael Galeano Andrades, Bernardo Orozco Herrera and María Ofelia Vasquez Avila  
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CONSISTENCY AND NON-CAUSAL MODELS FOR LONG TERM PLANNING VIA UNIFORM SMALL SAMPLE  
RANDOM NUMBER GENERATION  
I. Galperin\* and E.A. Galperin\*\*  
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NEW CONDITION CHARACTERIZING SOLUTIONS OF VARIATIONAL INEQUALITY PROBLEMS  
Rolando Garciga Otero\* and B. F. Svaiter  
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NEW TRENDS FOR TEACHING PROBABILITY USING CDPYE

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A DIDACTIC EXPERIENCE ABOUT PROBABILITY BY MEANS ACASINO  
M. García-Ligero\*, P. Roman\* and Luis Carrillo de Sotomayor\*\*  
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INTERACTIVE MATERIALS FOR THE RESOLUTION OF A LINEAR PROGRAMMING PROBLEM USING THE SIMPLEX METHOD  
M. J. Garcia-Ligero and P Roman, P. Roman\*  
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INTERACTIVE APPROACHES TO MULTI-CRITERIA OPTIMIZATION AND DECISION SUPPORT - PRINCIPLES, METHODS, AND APPLICATIONS  
Martin Josef Geiger  
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A NEW STABILIZED FINITE ELEMENT METHOD FOR TWO SECOND ORDER PDES: THE GALERKIN PROJECTED RESIDUAL METHOD  
Eduardo Gomes Dutra do Carmo\*, Gustavo Benitez Alvarez\*\*, Abimael Fernando Dourado Loula\*\*\* and Fernando Alves Rochinha\*  
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PARAMETER ESTIMATION OF DIFFUSION PROCESSES USING EDAS  
Zochil Gonzalez Arenas\*, Juan Carlos Jimenez Sobrino\*, Li-Vang Lozada Chang\*\* and Roberto Santana Hermida\*\*\*  
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DETERMINACION DE LOS ATRIBUTOS CLAVES DEL SERVICIO SPA "AGUAS DE ORO" DEL HOTEL PARADISUS RÍO DE ORO RESORT & SPA  
Jorge Ramón González Ferrer, Anais Laffta Riveron y Dayana Lozada Nunez  
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GRASP CON BÚSQUEDA DE VECINDAD VARIABLE APLICADA AL PROBLEMA DE ASIGNACIÓN CUADRÁTICA PARA INSTANCIAS DE GRAN ESCALA  
Rogelio Gonzalez Velasquez, Ma Auxilio Osorio Lama, Martin Estrada Analco  
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REGULARIZATION METHODS FOR SLICED INVERSE REGRESSION  
Stephane Girard\*, C. Bernard-Michel and I. Gardes  
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SCIENTIFIC COOPERATION IN LATIN AMERICA  
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.ADJOINT BROYDEN A LA GMRES  
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A MODIFIED STANDARD EMBEDDING FOR USING IN NONLINEAR GLOBAL OPTIMIZATION  
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PROBLEMA DE CUBRIMIENTO DE CONJUNTOS  
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DISTINTOS CONTRASTES DE COINTEGRACION EN ECONOMETRIA. APLICACIONES  
Carmelo Herrera Sanchez  
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NUMERICAL AND SIMULATION METHODS FOR THE APPROXIMATION OF THE PROBABILITY OF RUIN WITH HEAVY TAILED CLAIMS  
A. Hinojosa and A. Milanes  
Brazil.

SUPPLIER-CUSTOMER ENTROPIC-RELATED COMPLEXITY FOR CUSTOMISED PRODUCTS: BEFORE VS. AFTER CORE PROCESS REDESIGN  
Luisa Huaccho Huatoco  
Technology and Innovation Group (TIGr), Leeds University Business School (LUBS), Woodhouse Lane, Leeds, AN APPLICATION OF DATA ENVELOPMENT ANALYSIS IN INDUSTRIAL EFFICIENCY ASSESSMENT  
D. Hunjet\*, L. Neralić\*\* and I. Turčić\*\*\*  
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MEAN FIELD LIMIT FOR INTERACTING PARTICLES WITH SINGULAR POTENTIALS  
P-E Jabin, J. Barre and M. Hauray  
Inria Sophia-Antipolis and University of Nice, France.

MATHEMATICAL PROGRAMMING BASED SCHEDULING OF PARALLEL BATCH PROCESSING MACHINES UNDER MULTIRESOURCE CONSTRAINTS  
Payman Jula, Canada.

INDEPENDENCE TESTING OF VARIABLES WITH NOMINAL MEASURE -CUSTOMS COMPONENT IN CROATIAN BRAND  
Elza JurunJurun, E. and Ivan Bodroživ  
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RÉSOLUCIÓN DE GRANDES SISTEMAS DE ECUACIONES CON MATRICES SPARSE

Juan Claudio Juvier.  
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CONJECTURAL VARIATIONS EQUILIBRIUM: APPLICATIONS TO MIXED DUOPOLY  
Vyacheslav Kalashnikov and Vitaly  
Kalashnikov  
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HUMAN MIGRATION MODEL APPLIED TO LAGUNA REGION IN MEXICO  
Vyacheslav Kalashnikov, Nataliya Kalashnykova and Ramón  
LuévanosKalashnikov  
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NUMERICAL SOLUTION OF COMPLEMENTARITY PROBLEMS WITH PERTURBATION ALGORITHMS  
Vyacheslav Kalashnikov\*, Nataliya Kalashnykova\*\* and Aarón  
Arévalo Franco\*\*  
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AVERAGE CASE SOLUTION TO AN OPTIMIZATION PROBLEM IN HUSIMI LATTICES  
Alejandro Lage-Castellanos and Roberto Mulet  
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AN APPLICATION OF COX'S PROPORTIONAL HAZARD MODEL TO PATIENTS WITH AIDS IN SPAIN  
A.M Lara-PorrasLara\* and E. Corpas-Nogales\*\*  
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NEW METHODOLOGIES IN STATISTICS: A DIFFERENT WAY OF STUDYING SPSS  
Ana María Lara-PorrasLara, A.M., Spain: Eva María Ramos-àbalos, Rocío Raya-Miranda, Ismael Ramón  
Sánchez-Borrego and José Antonio Tarifa-Blanco  
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STATISTICS BY MEANS OF ICT, E-FOLDERS AND REAL DATA  
Ana María Lara-Porras and Yolanda Román-Montoya  
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STATISTICS USING A MESSAGE IN CODE AND SOME LITERARY TEXTS  
Ana María Lara-Porras and Yolanda Román-Montoya  
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TIMBER HARVEST SCHEDULING IN CUBA USING A MULTIOBJECTIVE APPROACH  
Amparo León Sanchez\*, Trinidad Gómez Nuñez\*\*, Mónica Hernández  
Huelin, Julian Molina Luqu\*\*, Rafael Caballero Fernandez\*\*  
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ANALYZING MULTI-SOURCE MEDICAL DATA BY NEURAL  
NETWORKS  
Wolfram-M. LippeLippe, M.,  
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SOLVING THE PRODUCTION-TRANSPORTATION PROBLEM IN THE PETROLEUM INDUSTRY  
Zrinka Lukač\*, Dubravko Hunjet\*\*, Luka Neralić\*\*  
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COMPARISON OF OPTIMAL PORTFOLIOS SELECTED BY MULTICRITERIAL MOEL USINF ABSOLUTE AND  
RELATIVE CRITERIA VALUES  
Branka Marasović  
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ON THE OPTION DELTA IN DISCRETE TIME  
Miklavž Mastniček  
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EDUCATION STATISTICS OF THE AUTONOMOUS CITY OF MELILLA  
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