



UNIVERSIDAD
POLITECNICA
DE VALENCIA



MATHEMATICAL MODELLING IN ENGINEERING & HUMAN BEHAVIOUR 2014

September 3th-5th, 2014

Instituto Universitario de Matemática Multidisciplinar, (*)

Universitat Politècnica de València, 46022 Valencia, Spain

Building 8G, 2º Floor, access A and C

Webpage: <http://jornadas.imm.upv.es>

Schedule

- Communications: 15 min (exposition) + 5 min (for questions).

Wednesday 3th

10:00- 13:00	REGISTRATION (Venue: IMM)	
	Parallel session: Mathematical Models in Combustion Engines (Venue: RED CUBE) <i>Chairman: A. J. Torregrosa</i>	Parallel session: Modelling I (VENUE: YELLOW CUBE) <i>Chairman: J. C. Cortés</i>
15:30- 15:50	Pedro Martí (CMT,UPV), Comparison of an Eulerian Spray Atomization model with DNS results. Adjustment of inter-facial surface density transport equation parameters.	Lucia Hilario (Univ. Cardenal Herrera), A matrix-based optimization algorithm for shape deformation using parametric curves.

15:50 - 16:10	Eduardo J. Pérez (CMT, UPV), Analysis of the approximated diffusion flamelet approach using fuels with different chemical complexity.	Julio Benítez (Instituto de Matemática Multidisciplinar), Consistent completion of incomplete judgments in decision making using AHP.
16:10 - 16:30	Luis Miguel García (CMT, UPV), Effect of the numerical scheme resolution on quasi-2D simulation of an automotive radial turbine turbocharger under highly pulsating flow.	Joaquín Izquierdo (Instituto de Matemática Multidisciplinar), Injecting problem-dependent knowledge to improve evolutionary optimization search ability.
16:30 - 16:50	José Vicente Romero (Instituto de Matemática Multidisciplinar), Numerical simulation of primary atomization in diesel spray at low injection pressure.	Enrique Campbell (Instituto de Matemática Multidisciplinar), Self-Organized Maps and Clustering Techniques to Sectorize Water Supply Networks based on Energy Criteria.
16:50 - 17:10	Manuel Hernández (CMT, UPV), Development of a non-linear quasi-3D model for engine gas-exchange modelling.	Juan Alegre (Instituto de Matemática Multidisciplinar), Analysis of mobile Apps lifecycle. Epidemiological modeling approach by random networks.
17:10 - 17:30	COFFEE BREAK	
	Parallel session: Numerical Methods I (Venue: RED CUBE) <i>Chairman: J. C. Cortés</i>	Parallel session: Modelling II (Venue: YELLOW CUBE) <i>Chairman: B.M. Chen-Charpentier</i>
17:30 - 17:50	María de los Ángeles Castro (Univ. Alicante, Spain), A compact difference scheme for numerical solutions of second order dual-phase-lagging models of micro-scale heat transfer.	Óscar Trull (Applied Statistics, Operations Research and Quality Department, UPV), Multiple seasonal Holt-Winters applied to Spanish short-term electricity demand forecasting: an alternative to Red Eléctrica Española model.
17:50- 18:10	Damián Ginestar (Instituto de Seguridad Industrial, UPV), Use of discontinuity factors in high-order finite element methods.	Antonio Falcó (Universidad Cardenal Herrera), Numerical Strategies in Mould Filling Simulation by using a

		Level Set Approach.
18:10-18:30	Pedro Ruiz (Instituto de Instr. para Imagen Molecular) . High performance computing of the matrix exponential.	Francisco Pujol (Univ. Alicante, Spain) , A hybrid SVM-LBP approach for face recognition.
18:30-18:50	Óscar Angulo (Univ. de Valladolid) , Study of efficiency in the numerical integration of size-structured population models: error and computational cost.	Alberto García (Univ. Alicante, Spain) , Convergence analysis and validation of low cost distance metrics for computational cost reduction of the Iterative Closest Point algorithm.
18:50-19:10	M. Consuelo Casabán (Instituto de Matemática Multidisciplinar) , Solving random heat problems in a semi-infinite bar with unhomogeneous boundary value conditions.	Ramón Rizo (Univ. Alicante, Spain) , Modelling Robust Swarm Deployment for Aerial Indoor Robots Using Virtual Pheromones.
19:10-19:30	Ana Navarro (Instituto de Matemática Multidisciplinar) , Probabilistic solution of Ricatti homogeneous problems.	Sergio Amat (Univ. Politécnica de Cartagena) , A two-step Steffensen's type method in Banach spaces with applications on boundary-value problems

Thursday 4th

9:00-9:15	OPENING (Venue: RED CUBE)	
9:15-9:45	Benito Chen (Univ. of Texas at Arlington) , A mathematical model of bone remodeling with delays.	
	Parallel session: Modelling III (Venue: RED CUBE) <i>Chairman: J. Izquierdo</i>	Parallel session: Medicine Models I (Venue: YELLOW CUBE) <i>Chairman: R. J. Villanueva</i>
9:45 – 10:05	Álvaro Bernal (ISIRYM, UPV) , An inter-cells polynomial expansion method	Erasmia Lampryanidou (Instituto de Matemática Multidisciplinar) , High Connectivity Random Network

	for the steady-state 2 energy-group neutron diffusion equation discretized by the Finite Volume Method.	Models of the Brain.
10:05-10:25	Emilio Larrodé (Dept. Mechanical Engineering, Univ. Zaragoza, Spain), An optimization algorithm for solving the rich vehicle routing problem based on variable neighbourhood search and tabu search metaheuristics.	Marta Osca (Hospital Obispo Polanco, Teruel, Spain), Modeling improvement of pain and quality of life in osteoporosis patients treated with teriparatide.
10:25-10:45	Francisco Denia (Research Center for Vehicle Technology, UPV) Point collocation scheme in silencers with temperature gradient and mean flow.	Antonio Martínez (Univ. of Alicante, Spain), Human tremor signal filtering: An application for the pre-diagnosis using low cost devices.
10:45-11:05	Damián Ginestar (Instituto de Matemática Multidisciplinar), Moving meshes to solve the time-dependent neutron diffusion equation in hexagonal geometry..	Pilar Fuster (Appl. Mathematics, Univ. Illes Balears, Spain), Using Bayesian network modelling in metabolic syndrome risk. A comparison with Bayesian classifiers and logistic regression.
11:05-11:25	Beatriz Royo (Dpt. Mechanical Engineering, Univ. Zaragoza, Spain), Route Planning for a Mixed Delivery System in long distance transportation and comparison with Pure Delivery Systems.	Alfredo Cuesta (Univ. Complutense de Madrid, Spain), Evolutionary LTI models of Glucose-Carbohydrate-Insulin Interaction.
11:30-12:00	COFFEE BREAK	
	Session: Modelling IV (Venue: RED CUBE) <i>Chairman: D. Ginestar</i>	Parallel session: Medicine Models II (Venue: YELLOW CUBE) <i>Chairman: R. J. Villanueva</i>
12:00-12:20	Štěpán Papáček (Univ. South Bohemia, Czech Republic), On the equivalence of two methods for parameter estimation problem based on spatial-temporal FRAP	Luis Domenech (Universidad Cardenal Herrera), A 3D mathematical model for planning osteotomy on long-bone angular deformities.

	data.	
12:20-12:40	Raúl Martínez (Univ. Jaume I de Castelló, Spain) , On the Reynolds averaging of transversal interfacial forces in two-phase flow simulations.	Francico Palmi (Instituto de Matemática Multidisciplinar) , Modelling networks of sexual contacts from real statistical data.
12:40-13:00	Paulino J. García-Nieto (Univ. Oviedo, Spain) , An hybrid PSO optimized SVM-based model for predicting a successful growth cycle of the <i>Spirulina platensis</i> from raceway experiments data.	Belén García-Mora (Instituto de Matemática Multidisciplinar) , Bayesian prediction for flowgraph models with covariates. An application to bladder carcinoma.
	Plenary Talk (Venue: RED CUBE) <i>Chairman: R. Company</i>	
15:45-16:15	Miguel Romance (Univ. Rey Juan Carlos, Madrid, Spain) Analysing competitiveness with complex networks: From theory to some applications	
	Session: Mathematical Models in Business I (Venue: RED CUBE) <i>Chairman: R. Company</i>	Session: Numerical Methods II (Venue: YELLOW CUBE) <i>Chairman: S. Blanes</i>
16:15 - 16:35	Vera Egorova (Instituto de Matemática Multidisciplinar) , Constructing Positive Reliable Numerical Solution for American Options: A New Front-Fixing Approach.	Carles Teruel (Instituto de Matemática Multidisciplinar) , Dynamical Study while Searching Equilibrium Solutions in N-body Problem.
16:35 - 16:55	Francisco Álvarez (Univ. Complutense de Madrid, Spain) , Dynamics of the price distribution of a homogeneous good: a mean-field evolutionary approach.	Alberto Magreñán (Univ. de la Rioja, Spain) Damped Newton's method for solving problems associated with the Stewart-Gough platform), A method to set tube zones for maximizing benefits.
16:55-17:15	Mohamed El Fakharany (Instituto de Matemática Multidisciplinar) , A positive preserving difference scheme for European options under Bates model.	M. Seydaoglu (Ege University, Turkey) , High-order splitting methods for Burgers' equations.

17:15 - 17:45	COFFEE BREAK	
	Session: Mathematical Models in Business II (Venue: RED CUBE) <i>Chairman: B. Chen-Charpentier</i>	Session: Numerical Methods III (Venue: YELLOW CUBE) <i>Chairman: F. J. Solis</i>
17:45 - 18:05	Lourdes Gómez del Valle (University of Valladolid, Spain) , Nonparametric estimation in jump-diffusion interest rate derivative models.	Alberto Magreñán (Univ. de la Rioja, Spain) , Design, implementation and measurement of integrated frequency synthesizers with accurate and previous estimation of its main figures of merit thanks to a novel mathematical simulation tool: Simusyn.
18:05- 18:25	Francisco J. Santonja (Univ. of Valencia, Spain) , Probabilistic modelling to short-term diffusion of electronic commerce in Spain.	Víctor Gayoso (Univ. of Salamanca, Spain) , Efficient high-order finite difference methods for nonlinear Klein–Gordon equations.
18:25- 18:45	Roberto Cervelló (Polytechnic University of Valencia, Spain) , Probabilistic Country Risk Score Forecasting for BRICS emerging markets by means of a Diffusion Model.	Sergio Blanes (Instituto de Matemática Multidisciplinar) , Efficient exponential integrators for solving mixed non homogeneous and non-autonomous coupled partial differential systems.
18:45- 19:05	Francisco Moreno (Univ. Nacional de Colombia) , Formal Specification of a Planning Algorithm with Extended Predicates to Compositions of Learning Paths.	Celestino Ordóñez (Univ. of Oviedo) , A clustering ensemble method for missing data imputation in a two parameter item response function. Application to the analysis of a questionnaire.
19:05- 19:25	Cristina Jordán (Instituto de Matemática Multidisciplinar) , A Computational Graph-Based algorithm for the management of a car-rental service.	Marc Jornet Sanz (Univ. de València) , A Bayesian stochastic SIRS model in discrete time using environmental factors for the study of Respiratory Syncytial Virus in the region of Valencia, Spain.

Friday 5th

	Session: Plenary Talks (Venue: RED CUBE) <i>Chairman: B.M. Chen-Charpentier</i>	
9:15-9:45	Jesús Martín-Vaquero (Dpt. Applied Mathematics, Univ. of Salamanca, Spain) , Stabilized Explicit Runge-Kutta methods for solving nonlinear multi-dimensional parabolic PDEs in financial mathematics.	
9:45-10:15	Francisco J. Solis (Center of Research in Mathematics, CIMAT, Mexico) , Discrete multiple delay advection-reaction operators.	
	Session: Social Models (Venue: RED CUBE) <i>Chairman: M. Romance</i>	Session: Numerical Methods IV (Venue: YELLOW CUBE) <i>Chairman: J. Izquierdo</i>
10:15 - 10:35	A. Hervás (Instituto de Matemática Multidisciplinar) , A.S.E.M. for analysis of factors associated with the choice of degrees at UPV.	Beatriz Sevilla (Universitat Politècnica de Catalunya) , The Role of Significance Statistical Tests on Cluster Interpretation.
10:35-10:55	Gabriela Ribes (Business Administration and Management, UPV) , Co-creation between students and universities and its effects to the student's satisfaction and trust.	Lenin G. Lemus (Institute ITACA, UPV) , Tables for cumulative probability of the Ex-gaussian distribution.
11:00-11:30	COFFEE BREAK	
	Session: Social Models II (Venue: RED CUBE) <i>Chairman: A. Hervás</i>	Session: Numerical & Analytical Methods (Venue: YELLOW CUBE) <i>Chairman: J. Izquierdo</i>
11:30-11:50	E. de la Poza (Business Administration and Management, UPV) , Modeling the growth of electoral support to emergent parties in a crisis environment: The case of	Néstor Thome (Instituto de Matemática Multidisciplinar) , On the inverse eigenvalue problem of Hermitian reflexive matrix

	Valencian Community.	
11:50-12:10	Francisco Pedroche (Instituto de Matemática Multidisciplinar) , Comparison of some measures of Competitive Balance in regular seasons of Basketball European leagues.	Antonio Franqués (Instituto de Matemática Multidisciplinar) , Numerical solution of turbulence problems by solving Burger's equation.
	Session: Computational Models (Venue: RED CUBE) <i>Chairman: R. J. Villanueva</i>	Session: Numerical & Analytical Methods (Venue: YELLOW CUBE) <i>Chairman: J. R. Torregrosa</i>
12:10-12:30	Patricia Arroba (Electronic Engineering Dpt. , Technical Univ. of Madrid) , Evolutionary Power Modeling for High-end Servers in Cloud Data Centers.	Pedro Fortuny (Dpt. Mathematics, University of Oviedo) , Cyclic coordinate descent in a class of bang-bang optimal control problems.
12:30-12:50	Francisco José Mora (Computational Science and Artificial Intelligence, Univ. Alicante) , A Formal Specification of Autonomous Agent Systems with Subsystems Inspired by Biology.	Alberto Fraile (Dpt. Mechanical Engineering, Univ. of Zaragoza) , Decision model to optimize the location of logistics and transport facilities in urban environments.
12:50-13:10		José Antonio López (Univ. de Jaume I de Castelló) , Analysis of a bi-parametrical family of transformations for the improvement of the study of the orbital motion.
LUNCH OF THE CONFERENCE		