

PROGRAM

15th International Workshop

on

Operations Research

**Models and methods for information management
and decision making**

Havana (Cuba), May 29-June 2, 2023

Organized by



Universidad de La Habana

Université Paris 1, Panthéon-Sorbonne

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Cubana de

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Lecturers

Plenary speakers

Antonio Alonso Ayuso (Spain).

Alain Celisse (France).

Pierre Latouche (France)

Raik Stolletz (Germany).

Pedro Valdés Sosa (Cuba- China)

Main speakers

Didier Aussel (France)

Marie Cottrell (France)

Joachim Daduna (Germany)

Christine Tammer (Germany).

Jean-Charles Lamirel (France).

Min Li (China).

Timetable

Monday Pre-IWOR's activities

Time	
9:00-11:00	Open Session of the Convention
	(Cine Yara, L and 23 street, Vedado)

Time	Talk	Room
14:00-16:00	Tutorial- <i>Introduction to R-Shiny</i> . Dr. Clément Laroche (SAMM, Université Paris 1). Introducer: Yanet García	Room 1
15:00-17:00	Pre-event workshop: Impact of research projects in the practice: Experiences & perspectives.	Room 2
17:00- 17:30	Special Contribution: <i>Fantasy, Fiction and Mathematics</i> <i>Harry Potter and the secrets of Applied Mathematics: pop culture in Operations Research classrooms</i>	Room 1
17:30-20:00	<i>Social Activity: Knowing the building Felipe Poey. Gathering activity</i>	Building Felipe Poey

Tuesday

9:00-10:00: **Opening Address of 15th IWOR. Room 1**

Plenary Lecture: *Measures of Risk Aversion and stochastic optimization in the management of natural resources*. Prof. Dr. Antonio Alonso Ayuso. President of ALIO, University Rey Juan Carlos, Spain.

Introducer: S. Allende

10:00-10:20: Coffee Break

10:20-10:50 **Main Lecture:** Optimality conditions in optimization under uncertainty (Prof. Dr. Christina Tammer, University of Halle-Wittenberg). Introducer: Gemayqzel Bouza

10:50-11:20 **Main Lecture:** Polynomial single-Leader-Multi-Follower games (Prof. Dr. Didier Aussel, Université Perpignan, France). Introducer: Gemayqzel Bouza

11:20-13:00: **Session Optimization & Game Theory. Room 1**

	Speaker	Talk
11:20-11:40	Elisenda Molina	Centrality versus spreaders: hybrid strategies for competitive influence diffusion in social networks
11:40-12:00-	Conrado M.Manuel	A position value for multigraphs
12:00-12:20	Gemayqzel Bouza	A mathematical model for designing geo-parks
12:20-12:40	Milan Hladík	Stability in multiobjective linear programming with uncertain costs and weights

11:20- 12:40: **Session Mathematical Model in the Economy. Room 2**

Chair: Bengt Wickstrom

	Speaker	Talk
11:20-11:40	Pablo Olivares	Pricing Techniques in Environmental Finance
11:40-12:00	Alexander Álvarez	O-equivalent measures and arbitrage
12:00-12:20	Jaromir Antoch	On estimation of quantiles and expectiles and their applications in risk management
12:20-12:40	Bengt- Arne Wickstrom	Optimal and politically opportune language policies for the vitality of minority languages

12:40-14:30 Break

14:30- 15:00 **Main Lecture:** Alternative Topic-Modeling Methods: A Comparison (Prof. Dr. J. Ch. Lamirel, University of Strasbourg). Introducer: Alberto Fernández

15:00-16:50: **Session Machine Learning Room 2**

Chair: J. Ch. Lamirel

	Speaker	Talk
15:00-15:20	Manuel Vilas	AutoML for Recommender Systems: ranking phase.
15:20-15:40	Ernesto Luis	Heterogeneous AutoML Benchmark
15:40-15:50	Coffee Break	
15:50-16:10	Lucie Dvořáčková	Early detection of potentially influential research articles using text-mining techniques
16:10-16:30	David Guaty	Neuronal network for model selection of linear ODEs
16:30-16:50	Víctor M. Cardentey	Machine Learning on Graphs for Automatic Data Visualization

15: 00- 16:50- Session: Epidemiological Models Room 3

Chair: Aymée Marrero

Time	Speaker	Talk
15:00-15:20	Yanet García	Consistency of epidemiological indicator of a disease
15:20-15:40	José A. Mesejo	Diffusion of epidemics based on meta-populations with Lagrangian motion
15:40-15:50	Coffee Break	
15:50-16:10	Carlos R. Sebrango	Sub-epidemic modeling framework for short-term forecasting epidemic waves: application to the covid-19 pandemic in Cuba
16:10-16:30	Jorge Estrada	Hybrid model SIT-SIR for the analysis of the effectiveness of the sterilization technique in the control of diseases transmitted by mosquitoes
16:30-16:50	Mario Villalobos	Curve Fitting for pandemic data using Generalized Logistic Regression

16:50-17:50: Session Electronic Poster on Epidemiological Model and related topics Room 3

Chair: Mario Villalobos

	Speaker	Poster
	Rolando Uranga	Treatment of missing data in vaccines against covid: is it good to use complete cases?
	Wilfredo Morales	The endemic permanence of COVID-19 in Cuba through a mathematical model
	Julián Sarría	Bifurcation and pattern formation in a cross-diffusivity epidemic model
	Celia T. González	Occurrence of Bifurcations in epidemiological models: significance in the prediction of disease transmission
	Vivian del Rosario Sistachs	Bayesian modeling of parameters of the Sars-Cov-2 epidemic en Cuba
	Verónica Medina	Qualitative analysis of epidemiological models describing the dynamics of Covid-19 in Cuba.
	Airelys Collazo	Eagle: Visual interface for solving epidemiological models

14:30 – 17:40: Tutorial: Short Introduction to change- point detection. Prof. Dr Alain Celisse SAMM.

Université Paris 1. Panthéon Sorbonne, Francia. **Room 1**

Introducer : Carlos Bouza

Wednesday

9:00-10:00: **Plenary Lecture: *Analysis of time-dependent queues with generally distributed retrieval Times.* Prof. Dr. Raik Stolletz, University of Mannheim, Germany. Room 1**

Introducer: Alina Ruiz

10:00-10:20: Coffee Break

10:20-10:50 **Main Lecture:** Applying OR technic to improve public services in rural area. (Prof. Dr. Joachim Daduna, Hochschule für Wirtschaft und Recht Berlin, Germany). Introducer: Alina Ruiz

10:50-12:30 **Session Management Sciences. Electronic Posters Room 1**

Chair: Antonio Batista

	Guillermo Brito	Aeronautical cybersecurity maturity management's software using requirements prioritization with fuzzy preferences
	Yasser Alfonso	M@TUR: Application of Mathematics in Tourism
	Joanna Campbell	Mobile applications for the collection and reporting of field data on properties in Managua, Nicaragua
	Aracelys García	Improved GPS positioning on Android
	Rodrigo y fernan	Sistema para la integración de herramientas para la solución ágil de Problemas de Enrutamiento de Vehículos
	Azael Rajadel	A mathematical model and an heuristic algorithm for balanced cargo loading
	Yeneit Delgado	An algorithm to solve Equilibrium Problems with Equilibrium Constraints
	Ma. Cristina Mena	A review of strategies to reduce waiting times in Banking institutions.
	Yohan Diaz	Algorithm for the numerical solution of the heat equation using finite differences

10:20-12:30: **Session Applications in Medicine. Room 2**

Chair: Marta L. Baguer

	Speaker	Poster
10:20-10:40	Miguel A. Martinez	Temporary evolution of autonomous leukemic clones that compete with hematopoietic cells for niches in the bone marrow.
10:40-11:00	Antolín González	Diagnosis and relapse in a model of competition between leukemia clones and healthy cells. Variations in the simulation of the chemotherapy application.
11:00-11:20	Nicole C. Cassimiro	Linear programming and fuzzy optimization in radiotherapy decision making
11:20-11:40	Yunier E. Tejada	Restricted cur matrix decomposition in cancer DNA microarray data classification problems
11:40-12:00	Rocío Ortiz	Classification of skin cancer lesions in dermatoscopic images: a proposal
12:00-12:20	Carmen Viada	Meta-analysis to evaluate the pharmacokinetic parameters of nimotuzumab

12:20-12:30	Discussion
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12:30-14:30 Break

14: 30 – 17:20: Session Numerical Analysis Room 2

Chair: Ángela León

Time	Speaker	Talk
14:30-14:50	Loidel Barrera	Influence of the parametrization of the physical domain on the numerical solution of Helmholtz equation computed with isogeometric approach
14:50-15:10	Jorge Estrada	ConicCurv: a new curvature estimation algorithm for planar polygons
15:10-15:30	Reynaldo Barrera	Nonlinear diffusion by regions. KMLS a new version, comparison with other gradient threshold estimations for the diffusion coefficient
15:30-15:40	Coffe Break	
15:40-16:00	Damián Valdés	Numerical strategy for the solution of the nonlinear system of a Discrete Shapelet Transform II for pattern detection
16:00-16:20	Victoria Hernández	Isogeometric approach for the numerical solution of Helmholtz equation in inhomogeneous media
16:20-16:40	Raúl Guinovart Díaz	Conductivity properties in 2D fibrous composite with interfacial resistance

14:30- 17:20: Session Management Science Room 3

Chair: J: Daduna

	Speaker	
14:30-14:50	Antonio Batista	Business Analytics: a novel approach for the application of Operations Research in Cuban firms.
14:50-15:10	Lukas Verveka	Understanding the affiliate marketing: a dynamic time series model on e-commerce transactions
15:10-15:30	Ondrej Sokol	How store location affects the structure of the customer base?
15:30-15:40	Coffee Break	
15:40-16:00	Petra Tomanová	Modeling arrival times in queueing systems
16:00-16:20	Vladimir Holy	Score-driven models and their use in operations research
16:20:16:40	Lukáš Frýd	Measurement unit issues and two-stage DEA
16:40-17:00	Juan Tejada	Is it worth it? analysing the merging process of university departments at the Complutense University of Madrid through DEA
17:00-17:20	Dušan Hrabec	Heuristic algorithm for time-dependent vehicle routing problem: a waste collection application
17:20-17:40	Mónica Pozo	A mixed value for directed multi-communication situations

14:30 – 17:40: Tutorial: Topic modelling methods and applications (Part 1). Prof. Dr. Jean Ch. Lamirel, University of Strasbourg, France). **Room 1.**

Introducer : Alberto Fernández.

Thursday

9:00-10:00: **Plenary Lecture: *Leveraging the Global Brain Consortium to Harness Open Neuroscience for Research and Public Health.*** Prof. Dr. Pedro Valdés Sosa, University of Electronics and Technology of China, Cuban Neuroscience Center, China. **Room 1**

Introducer: Lidice Galán

10:00-10:20: Coffee Break

10:20-10:50: **Main Lecture:** Harmonized multinational qEEG norms (HarMNqEEG) (Prof. Dr. Min Li, Clinical Hospital of Chengdu Brain Science Institute, University of Electronic Science and Technology of China, Chengdu, China. **Room 1.** Introducer: Lidice Galán

Session Neurociencias 1. Room 1

Chair: **Victoria Hernández**

	Speaker	Talk
10:50-11:10	Ronaldo Garcia	Multivariate Intrinsic Local Polynomial Regression on Isometric Riemannian Manifolds: Applications to Positive Definite data.
11:10-11:30	Ania Mesa	Nonlinear and nonparametric analysis of causal relationships between different cortical regions
11:30-11:50	Eduardo Martínez	Active-set modified Newton-Raphson algorithm for studying the electrophysiological sources of aging-related processes using multiple penalized least-squares models
11:50-12:10	Mayrim Vega	Prediction of age-related changes in gait speed from Electrophysiological Source Imaging estimating by Multiple penalized least squares models.
12:10-12:30	Eduardo Garea-Llano -	Diagnosis of Alzheimer disease evolutionary stage from cross sectional cognitive data using Deep Neural network

12:40-14:30 Break

14: 30 - Session Neurosciences 2. Room 2

Chair: Eduardo Martínez

Time	Speaker	Talk
14:30-14:50	Deirel Paz	BigBrain compatible pipeline to facilitate Multilayer Electrophysiological Source Imaging
14:50-15:10	Yanetsy E. Rodríguez	Estimating Overlapped Event-Related Response with EM algorithm
15:10-15:30	Osmel José Escalona Mir	Comparative study of two denoising techniques for saccades processing
15:30-15:40	Coffee Break	
15:40-17:40	Poster session	
	Cristóbal Yera Gálvez	Mapping of neural activity in neurodegenerative diseases through a next-generation neural field model
	Marlis Ontivero-Ortega	Default Mode Network emerges from the individual Human Connectome using a model of information flow in the brain.

	Ariosky Areces-González	Measuring the true localization and leakage distortions of inverse solutions for low-density EEG
	Yeslaine Hernández	Modeling neural activity of <i>Caenorhabditis elegans</i> through neural message passing.
	Anisleidy González Mitjans	Integrating semi-analytically and efficiently extended Jansen and Rit Neural Mass Models with distributed conduction delays
	Ying Wang	The EEG Xi (aperiodic) spectral component, but not the Alpha rhythm, is linear and Gaussian

14:30-16:20: Session Environment Problems & Human Welfare. Room 3

Chair: Ridelio Miranda

	Speaker	Talk
14:30-14:50	Clement Larouche	Pesticides concentration monitoring from various heterogeneous sources of information.
14:50-15:10	Fabio Augusto Fortunato	Estimation of manning coefficients with nonlinear least squares
15:10-15:30	Pedro Roura	Methodology of maximum wind and probabilities of hurricane impact in Cuba. Casablanca weather station, 1909-2022
15:30-15:40	Coffee Break	
15:40-16:00	Javier Trejos	Clustering Rainfall by Simulated Annealing for Histogram Symbolic Data
16:00-16:20	Miguel Santana	Socio-demographical pattern from a spatial perspective in Cienfuegos province
16:20-16:40	Esteban F. Genes	Understanding the suicide dynamics in Medellín: a descriptive approach using data analytics
16:40-17:00	Ridelio Miranda	Mathematical modeling of the solid waste collection problem in the city of Cienfuegos

14:30 – 17:40: Tutorial: Topic modelling methods and applications (Part 2). Prof. Dr. Jean Ch. Lamirel, University of Strasbourg, France). **Room 1**

Introducer: Alejandro Mesejo)

Friday

9:00-10:00: **Plenary Lecture: *Bayesian Analysis of networks for the analysis of the last French presidential election.*** Prof. Dr. Pierre Latouche, Lab. LMBP, Université Clermont Auvergne, France.

Introducer: Carlos Bouza

10:00-10:20: Coffee Break

10:20-10:50: **Main Lecture:** Sparse and group sparse clustering for mixed data. Prof. Dr. Marie Cottrell (Lab. SAMM, University Paris 1, Panthéon Sorbonne, France)

Introducer: Marie Cottrell

10:50-12:20: **Session Mathematical Statistics. Room 1**

Chair: Marie Cottrell

	Speaker	Talk
10:50-11:10	Carlos Bouza	Estimation of Differences-in-Differences in the presence of nonresponse in a random sample
11:10-11:30	Pablo O. Juárez	A quantitative randomized response technique with three scrambling reports. Simulation with data of illicit crops in Guerrero, Mexico and first sexual intercourse
11:30-11:40	Piscolabis	
11:40-12:00	Yanet García	Bayesian structural time series in the inference of causal impact: A bibliometric analysis
12:00-12:20	Eduardo Pizza	Construction of balanced and incomplete block designs

12:20-13:20: Close Plenary Lecture: *Sparse change-point detection in high dimension and regularization.*

Prof. Dr. Alain Celisse, Lab. SAMM. University Paris 1, Pantheón Sorbonne, France. Room 1

Introducer: S. Allende

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13:20-15:30	Break
15:30	Close Session of the Convention Saber UH