

Tuesday Morning

9:00-9:30 Registration

9:30: Opening Session, Aula Magna, San Gerónimo College

10:30: Especial Conference, *La matemática en el contexto del modelo económico social de Cuba*, Prof. Dr. Miriam Nicado García (Ph.D. in Mathematics), Rector, Universidad de la Habana.

11:30-1:00: Welcome cocktail. Restaurant La Dominica.

Tuesday afternoon

Marques de Arcos Palace.

1:00-1:45: Welcome to the Marques de Arcos Palace.

1:45-2:30: Round Table about his life. *Session Prof. Dr. Jürgen Guddat in Memoriam.*

Non-linear programming. *Session Prof. Dr. Jürgen Guddat in Memoriam.*

Chair: Alina Ruiz

Time	Author	Title
2:30-2:50	W. Gómez	Exact relaxations of non-convex trust region problems with an additional quadratic constraint.
2:50-3:00	G. Bouza	Genericity for bilevel optimization problem

Poster Session 2:30-3:00

Chair A. Fernández

Y. Martínez	Cellular estimation Bayesian algorithms for discrete optimization problems.
N.R. de León	Mathematical modeling of informatics assisted systems of cut 2D problems
J. Consuegra	Analysis of e-health knowledge discovery baselines in the TASS 2018 workshop
C. Quintana	Integrating neighborhood and latent factors models to obtain accurate recommendations
R. Cruz	Windows distribution in trend detection systems

3:00-3:30 Coffee Break

Discrete programming. *Session Prof. Dr. Jürgen Guddat in Memoriam.*

Chair: Alina Ruiz

Time	Author	Title
3:30-3:50	J. Trejos-Zelaya	Clustering binary data by application of a tabu search algorithm based on neighborhoods
3:50-4:10	A. Murillo	MDS and simultaneous classification
4:10-4:30	M. Villalobos	Use of optimization heuristics for clustering by moving centroids

Poster Session 2:30-3:00

Chair A. Fernández

Author	Contribution
G. S. Mahdi	Estimation of Distribution Algorithm for probabilistic models with constraints: an application to project management
Y. Blanco	Building consensus process in multicriteria decision making methods, a different approach
M. A. Prado	Discovering influencers on social networks
K. Chesoon	Optimal control by the queue with rate and quality of service depending on the amount of harvested energy as a model of a node of wireless sensor network
D. Menció	Objective functions for controlling rumor propagation

Poster Session 4:00-4:30

Chair A. Fernández

Author	Contribution
J.F. García	Innovation and social capital for development opinion study in a Technological University of Mexico
V. Bolaños	Diagnosis and design of commercial strategies: study case of six enterprises from central and southern zone of Quintana Roo
K. Avendaño	Servicios tecnológicos que influyen en el interés de los estudiantes de bachillerato por carreras STEM (ciencia, tecnología, ingeniería y matemáticas).
A. García	Cost-effectiveness analysis of introduction the new pneumococcal conjugate vaccine in Cuba.
R. Fernández	Analysis of chronological series. Case study: precipitations in the city of Pinar del Río

Wednesday morning
Marques de Arcos Palace.

9:00-9:50: **Plenary Lecture:** In OR practice does matters, J. Miranda,
Chair S. Allende

9:50-10:10: Coffee Break

Session on Big Data.

Chair: M. Cottrell

Time	Author	Title
10:10-10:30	J. Nummenmaa	Towards intelligent services in emphatic buildings
10:30-10:50	A. Toledo	Comparison of kernel density based methods and DBScan method for classification in high density data sets: an application to the problem of stellar memberships

Poster Session 10:10-10:50

Chair V. Sistachs

D. García	Simulating trajectors for detecting urban segregation analysis in Paris
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J. Campbell	Looking demographic aging in Havana using self-organizing maps
R. Miranda	Study of the population renovation rate of the provinces La Habana and Cienfuegos
E. Cabrera	The management of territorial indicators for sustainable development in the Guamuha mountains, Cuba

Session on Logistics.

Chair: *J. Daduna*

Time	Author	Title
10:50-11:10	Y. Vázquez	Informatics system for sustaining decision making in the restoring services of the Cuban hotel network
11:10-11:30	G. Gaviño	Analysis of formal techniques for generating a logistic predictive framework of the load operation with third party logistics of finished products
11:30-11:50	A. Vega	Design and development of a logistic strategic model in the Departamento de Planeación, Estadística e Informática of the sanitary jurisdiction of Atizapán de Zaragoza.
11:50-12:10	I. Caamal	Costs and profitability of the production of Persian lime in the municipality of Misantla, Veracruz, Mexico
12:10-12:40	J. Daduna	Impacts of autonomous driving on public transport services

Poster Session 10:50-11:30

Chair *V. Sistachs*

Author	Title
G. Rodríguez	Fuel assignment for CUPET distribution lines
Y. Fernández	Optimization of the active power curtailment decision in a photovoltaic system based on stochastic dynamic programming
C. Pérez	On the best size for infinity in the metaheuristic infinitely variable neighborhood search
D. Díaz	Variable metaheuristic search: a hybrid algorithm for solving vehicle routing problem with transshipment and time constraints: two study cases.
L.E. Ramos	Models for decision making when evacuating people before hurricane pass

Poster Session 11:30-12:10

Chair *V. Sistachs*

Author	Title
W. Morales	Extrapolation methods for approximating a fairness functional
J.P.L. Gutiérrez	A proposal for the analysis and selection of social innovation initiatives
M. Cortés	Mathematical models for analyzing investments projects
S. Toste	Comparative analysis of metaheuristics in the parameter estimation problem for a cellular cancer model

Lunch Break.

Wednesday afternoon
Marques de Arcos Palace.

2:00-2:50 **Plenary Lecture** Industrial eco-park: GNEP and linear programming models,

D. Aussel

Chair *G. Bouza*

2:50-3:00: Coffee Break

3:00-3:50: **Plenary Lecture** Linear maps preserving graph theory invariants, A. Guterman.

Chair: S. Allende

Session on Optimal Control.

Chair: A. Pietrus

3:50-4:10	E.M. Delgado	Models for the study of the transmission and diffusion of Zika
4:10-4:50	A. Pietrus	Some numerical schemes for linear control system (ML)

Thursday morning

Marques de Arcos Palace.

9:00-9:50 **Plenary Lecture** On the convergence between mathematics and biology: a view from the perspective of cancer immunology. A. Lage.

Chair C. Bouza

9:50-10:10: Coffee Break

Session on Applications to Medicine.

Chair: C. Bouza

Time	Author	Title
10:20-10:40	A. Santiago	A study of the assertiveness of students of medicine
10:40-11:00	O. Juárez	Classification of the municipalities of Guerrero State, according to primary health care coverage
11:00-11:20	R. Uranga	Estimation of coefficients of correlation in observational studies
11:20-11:40	C. Viada	Quality of life as a predictive value and prognosis of survival in patients with head and neck cancer
11:40-12:00	A. Tuero	Bayesian hierarchical model for the geographical distribution of events
12:00-12:20	C. Sebrango	Model uncertainty in the comparison of two single dengue outbreaks
12:20-12:40	V. Sistachs	Models to predict motor and functional recuperation on patients with altered conscience state in a neuro rehabilitative program

Lunch Break

Thursday afternoon

Special Session at Cuban Academy of Sciences.

2:15: Short homage to Dr. Carlos J. Finlay.

2:20 *Cuban Sciences Academy: History and perspective*, by Lilliam Álvarez Díaz and Mercedes Valero (*Academia de Ciencias de Cuba*)

3:20-3:40: Coffee Break

3:40-4:50 Visit to the Museum of the Cuban Science

7:30: Conference Dinner, Restaurant La Florentina. Hotel Capri

Friday morning

Marques de Arcos Palace.

9:00-9:50 **Plenary Lecture:** Statistical Pattern Recognition in DNA Sequences by Maximum Tsallis Entropy Models, Ivo Grosse

Chair C. Tammer

9:50-10:10: Coffee Break

Session on Optimization.

Chair: G. Bouza

Time	Author	Title
10:10-10:30	D. Sackman	Applying data science to operations and supply chain management
10:30-10:50	C. Guenter	Vectorial penalization in multi-objective optimization and applications
10:50-11:10	C. Tammer	Existence and approximation theories for Quasi Variational Inequalities

Session on Statistics and its applications.

Chair: *J.C. Lamirel*

Time	Author	Title
11:10-11:30	C. Bouza	A visit to ratio type estimators in simple random sampling
11:30-11:50	W. Guerra	Response surfaces in the evaluation of the optimal performance of the internal combustion engine with diesel-ethanol blends
11:50-12:10	J.F. García	Satisfaction of engineering students with tutoring in a Technological University of Mexico
12:10-12:30	I. Caamal	Variations in the yield of the Persian lime in the municipality of San Rafael, Veracruz, Mexico

12:30-1:10 **Plenary Lecture** Adapting Feature Maximization Metric from Machine Learning to Complex Networks Analysis. Jean-Charles Lamirel

Chair M. Cottrell

Lunch Break

2:00- Excursion around the city and farewell cocktail