



Program - SMTDA 2022

7th Stochastic Modeling Techniques and Data Analysis International Conference with Demographics2022 Workshop

Webex Meeting link: <https://isast.webex.com/isast/j.php?MTID=me725fec14705f093feef50502be9c35c>

Meeting number: 2743 687 1120

Password: SMTDA2022

It is recommended to download and install the latest Webex desktop client
(<https://www.webex.com/downloads.html>) in order to use the latest benefits

Tuesday, 7.6.2022

09:00- 09:30 Registration - Preparation, interconnections

09:30 - 10:00

MUSES

Opening Ceremony

10:00-10:40

Chair: Christos H. Skiadas

Plenary Session-Honorary Guest

Claude Lefevre

UNIVERSITÉ LIBRE DE BRUXELLES & Université de Lyon 1, ISFA

Honorary Speech:

Ruin Problems with the Insurance Coverage of an Epidemic Process (on site)

10:40- 11:00 Coffee Break - Preparation, interconnections

11:00-12.15

SCS1

Special and Contributed Sessions

Covid-19

Chair: Yiannis Dimotikalis

Alejandro Aguirre, Eliud Silva

The crossovers between Births and Deaths caused by COVID-19: The Mexican case

Jesús E. García, V.A. González-López

A Stochastic Characterization of Omicron Variant of SARS-COV 2 Virus (virtual)

Stelios Zimeras

Markov epidemiological models for COVID-19 (virtual)

Yiannis Dimotikalis and Christos H Skiadas

Reaction to COVID-19 Pandemic: An Evaluation of Pandemic Management Around the World (on site)

Maria Carannante, Valeria D'Amato, and Guido Iaccarino

Stochastic modelling of the Covid-19 excess of deaths (virtual)

12:15-13.30
SCS2
Special and Contributed Sessions

MARKOV

Chair: James Bozeman

J. R. Bozeman

On the Metric Topology Induced from the BIC-based Consistent Metric between Markovian Processes (**on site**)

Andreas C. Georgiou, Emmanuel Thanassoulis, Georgios Tsaples

Efficiency Evaluation and Markovian models, current state and research variants (**virtual**)

Giannis A. Kechagias, Alexandros C. Diamantidis, Theodosios D. Dimitrakos

Optimal maintenance of a deteriorating equipment using semi-Markov decision processes and linear programming (**virtual**)

Rodi Lykou, George Tsaklidis

Kalman filtering for hidden Homogeneous Markov Systems of big populations (**virtual**)

Shafiqah A. Al-Awadhi

Student flow in an Academic Institution using an observing Markov Analysis

13:30-14:30 Lunch Break

14:30-16:00
SCS3
Special and Contributed Sessions

Special Session

Stochastic modelling with applications to finance and maintenance
Session organizers: **Ying Ni** (Mälardalen University, Sweden), **Lu Jin** (University of Electro-communications, Tokyo, Japan)

Kouki Takada, Marko Dimitrov, Lu Jin, Ying Ni

Properties of American options under a semi-Markov modulated Black-Scholes model (**on site**)

Mohammed Albuhayri, Marko Dimitrov, Ying Ni, Anatoliy Malyarenko

Numerical Studies of the Implied Volatility Expansions up to Third Order under the Gatheral Model (**on site**)

Marko Dimitrov, Achref Bachouch, Ying Ni, Anatoliy Malyarenko

Numerical BSDE Method for Pricing Options under Gatheral Model (**on site**)

Mizuki Kasuya, Lu Jin

Optimal maintenance policy for a two-state system with population heterogeneity under partial observation (**virtual**)

Hossein Nohrouzian, Anatoliy Malyarenko, Ying Ni

Constructing Trinomial Models Based on Cubature Method on Wiener Space: Applications to Pricing Financial Derivatives (**on site**)

16:00- 16:15 Coffee Break - Preparation, interconnections

16:15-17:30

SCS4

Special and Contributed Sessions

Population – Networks

Chair: Konstantinos Zafeiris

Akiva Bruno Melka, Yoram Louzoun

High fraction of silent recombination in finite population two locus neutral birth-death-mutation model (on site)

Akiva Bruno Melka, Navit Dori, Yoram Louzoun

Invasion Rate versus Diversity in Population Dynamics with Catastrophes (on site)

Istvan Fazekas, Attila Barta

A continuous-time network evolution model describing N-interactions (virtual)

Oladapo T. Ibitoye, Viranjay M. Srivastava

A Dynamic Neural Network Model for Accurate Recognition of Masked Faces (virtual)

Lincoln S. Peter, Hlabishi I. Kobo, Viranjay M. Srivastava

A Comparative Analysis of OpenFlow and P4 Protocols Based on Software Defined Networks (virtual)

17:30-19:00

SCS5

Special and Contributed Sessions

Estimators

Chair: Frederico Caeiro, Co-Chair: Aida Toma

Frederico Caeiro, Ayana Mateus

An evaluation of the efficiency of a shape parameter estimator for the log-logistic distribution (on site)

María Jaenada, Leandro Pardo

Robust tests based on minimum Rényi pseudodistance estimators (virtual)

Aida Toma, Amor Keziou

Robust Minimum Empirical Divergence Estimators for Moment Condition Models (virtual)

N. Balakrishnan, M. Jaenada, L. Pardo

Robust Rao's tests for non-destructive one-shot device testing with Weibull lifetimes (virtual)

M. Ivette Gomes, Luísa Canto e Castro, Sandra Dias, and Paula Reis

How to build accurate reliability bounds for a large coherent system (virtual)

End of the 1st Day



SMTDA 2022

7th Stochastic Modeling Techniques and Data Analysis International Conference
with Demographics2022 Workshop

Wednesday, 8.6.2022

08:00- 08:15 Preparation, interconnections

08:15-09:45

SCS6

Special and Contributed Sessions

Muses

Special Session: **Stochastic processes and their applications**

Chairs: Filippo Petroni and Riccardo De Blasis

Guglielmo D'Amico, and Filippo Petroni

On the ROCOF of higher order for semi-Markov processes with real applications (virtual)

Guglielmo D'Amico, and Filippo Petroni

A joint probability density function of wind speed and direction for wind power plant analysis (virtual)

Riccardo De Blasis

The weighted-indexed semi-Markov model: calibration and application to financial modelling (on site)

Giovanni Masala, Graziella Pacelli, and Filippo Petroni

Drawdown risk measures for asset portfolios with high frequency data (virtual)

Salvatore Vergine, César Álvarez-Arroyo, Guglielmo D'Amico, Juan Manuel Escaño, Lázaro Alvarado-Barrios

Optimal Management of a hybrid Microgrid in a random setting (on site)

09:45- 10:00 Coffee Break - Preparation, interconnections

10:00-10:40

Plenary Session II

Chair: Dimitrios Sotiropoulos

Speaker: Sally McClean

School of Computing - Ulster University

Title: Smart Process Modelling for improved Process Mining (on site)

10:40-11:50

SCS7

Special and Contributed Sessions

Special Session on Healthcare and Sports Modelling

Chairs: Sally McClean and Adele Marshall

David. J.P. O'Sullivan, Sally MacClean

Flexible model retraining criterion via Markov Decision Process for model maintenance in the presence of Concept Drift ([on site](#))

Leah. A. Keating, James. P. Gleeson, David. J.P. O'Sullivan

A Multi-Type Branching Process Method for Modelling Complex Contagion on Clustered Networks ([on site](#))

Francesco Porro, Marialuisa Restaino, Juan Eloy Ruiz Castro, Mariangela Zenga
Statistics in sport: analysis of the turnover for football coaches in the Italian SERIE A ([virtual](#))

Pavlos Kolias, Alexandra Papadopoulou and Sally McClean
Markov modeling for the evaluation of basketball performance ([virtual](#))

11:50-13:00

SCS8

Special and Contributed Sessions

Models and Modeling

Chair: Liberato Camilleri, Co-Chair: Flavius Guias

Flavius Guias

Epidemic models with several levels of immunity ([virtual](#))

Liberato Camilleri, Lawrence Grech, Alex Manche

Bayesian Parametric Survival Models ([on site](#))

Alvaro Montenegro, Daniel Montenegro

Automatic Essay Scoring of multiple traits based on Transformer-sentences models ([virtual](#))

Neringa Urbonaite, Leonidas Sakalauskas

Construction of a Kriging Model using Fractional Brownian Vector Fields ([virtual](#))

13:00- 14:00 Lunch

14:00-15:45

SCS9

Special and Contributed Sessions

Health

Chair: Konstantinos Zafeiris

Jana Vrabcová, Tomáš Fiala, Jitka Langhamrová
Possibilities of creating new health indicators ([on site](#))

Konstantinos N. Zafeiris, Christos Skiadas
Comparing Healthy life expectancy between Bulgaria and Greece since the 1960s ([on site](#))

Eleni Serafetinidou
Factors associated with direct and indirect aspects of loneliness among Europeans aged 50 or higher ([virtual](#))

Kornélia Svačinová, Markéta Majerová, Jana Vrabcová
A Tool for Measuring Alcohol Policy Scoring in Czechia and EU: The Innovative Alcohol Policy Indicator ([virtual](#))

Tomáš Fiala, Jitka Langhamrová, Jana Vrabcová
Could the idea of equitable normal pension age stabilize the pension system? ([virtual](#))

Nikolaos G Tsakalis, George Matalliotakis
The correlation between Quality of Life (QoL) and Health Literacy (HL) in gastrointestinal cancer patients.
A single-center cross-sectional study in Greece (virtual)

T.P. Sabgaida, V.G. Semyonova, A.V. Zubko
Impact of the COVID-19 pandemic on the mortality of Muscovites from endocrine diseases

15:45- 16:00 Coffee Break - Preparation, interconnections

16:00-17:45

SCS10

Special and Contributed Sessions

Stochastics I

Chair: Mark Anthony Caruana

Cyprien Ferraris

Phi divergence and consistent estimation for stochastic block model (on site)

Ikhlef Lyes, Aïssani Djamil

Stochastic modeling of perishable inventory retrial system with generally distributed lead times

Marek T. Malinowski

Symmetric Fuzzy Stochastic Differential Equations: Generalization of the Lipschitz Condition (virtual)

Jean-Paul Murara

Stochastic Optimal Control with a Multiscale Volatility Model

Samuel Bonello, David Suda, Monique Borg Inguanez

A Bayesian Approach to Measuring Risk on Portfolios with Many Assets (virtual/ on site)

17:45-19:15

SCS11

Special and Contributed Sessions

Statistics I

Chair: Mark Anthony Caruana

George Tzavelas, Konstadinos Politis

A Study of the Failure Rate for the Convolution of Two Distribution Functions, One of Which is Uniform (virtual)

Franca Crippa, Luca Cesana, Roberta Daini

Neuropsychological Normed Measures for the Tinker Toy Test (TTT). Exploring Latent Structures (virtual)

Konstantina Tsiota, Konstantinos A. Tasiias

An action-based process monitoring tool for quality shifts with multiple root causes (virtual)

Maria Symeonaki, D. Parsanoglou, Glykeria Stamatopoulou

Measuring transition smoothness into European labour market(s) (virtual)

Eva Tsouparopoulou, Maria Symeonaki

Refusal to participate in a survey as an indicator of reluctant responses (virtual)

Vladimir Rykov, Nika Ivanova

On Reliability Function of a k-out-of-n System with Dependent Failures

End of the 2nd Day



SMTDA 2022

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Thursday, 9.6.2022

09:00- 09:15 Preparation, interconnections

09:15-11:00

SCS12

Special and Contributed Sessions

Statistics II

Chair: Mark Anthony Caruana, Co-Chair: Athanasios Rakitzis

Jesús E. García, V.A. González-López

Young diagram and Statistical Independence (virtual)

Lazaros Kanellopoulos, Konstadinos Politis

Differentiated Laplace transform ratio order and some aging properties with applications

Jean-Paul Murara, Sergei Silvestrov, Bob Kirabo Ngoga

Portfolio Construction involving Vandermonde Matrix

Athanasios C. Rakitzis, Eftychia Mamzeridou

On the Design and Performance of Upper One-Sided Charts for Zero-Inflated Processes with Estimated Parameters (virtual)

David Suda

Stability of Sampling Proposals for Reducible Diffusions over Large Time Intervals (on site)

Andrei Zaitsev

Some results on the distributions of sums of independent summands

11:00-11:20 Coffee-Break

11:20-12:40

SCS13

Special and Contributed Sessions

Muses

Special Session (Virtual)

Stochastic and Statistical Data Analysis Models and Methods

Chair: Ilia Vonta, National Technical University of Athens

Elisavet Beki, Kimon Ntotsis, Alex Karagrigoriou

A Novel Dimensionality Reduction Approach through Partial Least Squares Method (virtual)

Konstantinos N. Makris, Ilia Vonta

An introduction to the indices $\mu^{[MKN]}$ and to the mathematical measure $V^{[MKN]}$ (virtual)

Christina Parpoula, Alex Karagrigoriou

The key role of change-point analysis in public health decisionmaking (virtual)

Milan Stehlík

On tissue discrimination for cancer research (virtual)

12:40-13:40
LUNCH

13:40-15:30
SCS14
Special and Contributed Sessions

Muses

Special Session (On-Site)
Stochastic and Statistical Data Analysis Models and Methods
Chair: Alex Karagrigoriou

Christos Meselidis, Alex Karagrigoriou, Takis Papaioannou
Robust Statistical Inference based on Dual Measures (on site)

Vlad S. Barbu, Thomas Gkelsinis
A class of Homogeneity tests for independent and dependent data with asymmetrically important transitions (on site)

Chrysoula Kroustalli, Alex Karagrigoriou, Andreas Makrides
Stochastic Processes and Reliability Analysis: Theoretical Issues and Applications (on site)

I. Mavrogiannis, A. Karagrigoriou, G. Papatotiriou, I. Vonta
Detecting Exponentiality via the catastrophe & conspiracy principles (on site)

Fatiha Mokhtari, Chafiâa Ayhar, Saâdia Rahmani, Vlad S. Barbu
Asymptotic properties of kernel estimators for continuous-time semi-Markov processes

15:30- 15:45 Coffee Break - Preparation, interconnections

15:45-16:30
Plenary Session III
Chair: Alex Karagrigoriou
Speaker: **Joseph E. Cavanaugh***, Benjamin Riedle, and Andrew A. Neath

*Department of Biostatistics, University of Iowa, Iowa City, Iowa, USA

Title: Probabilistic Pairwise Model Comparisons Based on Discrepancy Measures
and a Reconceptualization of the P-Value (virtual)

16:30- 16:45 Preparation, interconnections

16:45-18:00
SCS15
Special and Contributed Sessions

Mortality

Chair: Konstantinos Zafeiris

Panagiotis Andreopoulos, Fragkiskos G. Bersimis, Kleomenis Kalogeropoulos, Alexandra Tragaki
Recent changes in Human mortality: The case study of Greece

Tiê Dias de Farias Coutinho, Neir Antunes Paes
Preventable deaths and maternal and newborn factors in a region of Brazil: panel data modeling (virtual)

Traian Pirvu Joint work with Petar Jevtic and Minsuk Kwak
Practical partial equilibrium framework for pricing of mortality-linked instruments in continuous time (virtual)

Konstantinos N. Zafeiris

Greece since the 1960s: the mortality transition revisited. A Joinpoint Regression Analysis ([on site](#))

Maria Sachinidou and George Matalliotakis
Comparative and Long-Term Financial Analysis of 4 General Hospitals
belonging to Island Areas of Greece during 2017-2020 ([virtual](#))

A.V. Zubko, T.P. Sabgaida, V.G. Semyonova
Features of changes in male mortality during a pandemic

18:00-19:00

SCS16

Special and Contributed Sessions

WORKSHOP: Financial effects / consequences of the COVID-19 pandemic on Crete

Chairs: Christos Floros and George Matalliotakis

Implementing body and participants: Region of Crete, Accounting and Finance Laboratory (LAFIM) of the Hellenic Mediterranean University

Efthalia Tabouratzi and George Matalliotakis

The response of the Cretan companies to the COVID-19 pandemic ([virtual](#))

Christos Floros

Seasonality and persistence of air arrivals: The case of Crete ([virtual](#))

Nektarios Gavrilakis, Christos Floros, and Emiliios Galariotis

Corporate Governance Gender Equality and Firm Financial Performance: The Case of Euronext 100 Index ([virtual](#))

Dimitrios I. Vortelinos

Country tax measures in response to the Covid-19 pandemic and the foreign exchange market: International evidence ([virtual](#))

19:00-19:30

Chair: Christos H. Skiadas

Plenary Session ([virtual](#))

Robert D. Young

Director, GRG Supercentenarian Research and Database Division

Supercentenarians, Age Claims and Demographic Questions

End of the 3rd Day



SMTDA 2022

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Friday, 10.6.2022

09:00- 09:10 Preparation, interconnections

09:10-11:20

SCS17

Special and Contributed Sessions

Data Analysis I

Chair: Jang Schiltz

Elena Bamicha, Georgia Verropoulou

Assessment of the CASP-12 scale among people aged 50+ in Europe: An analysis using SHARE data (virtual)

Nassira Menni

Asymptotic normality for regression function estimate under right censored data and association

Cédric Noel, Jang Schiltz

A new R package for Finite Mixture Models with an application to clustering countries with respect to COVID data (on site)

Áurea Sousa, Osvaldo Silva, Helena Bacelar-Nicolau

Comparison between two algorithms for computing the Weighted Generalized Affinity Coefficient in the case of interval data

Fabien Llobell, El Mostafa Qannari

Cluster Analysis in a Multi-Block Setting (on site)

Rafik Abdesselam

A Topological Clustering of Individuals (virtual)

Valery Antonov

Comparative analysis of two signals of biomedical origin

11:20- 11:40 Coffee Break - Preparation, interconnections

11:40-13:30
SCS18
Special and Contributed Sessions

Data Analysis II

Chair: Jim Freeman, Co-Chair: Mark Anthony Caruana

Dominika Ballová
Comparison of selected methods commonly used to analyze changes in time series

Dominique Desbois
Applying Entropy Criterion to Cost Allocation: an Empirical Analysis of Fertilizer Cost Estimates for European Countries
(virtual)

Mark Anthony Caruana, Gabriele Lentini
Multivariate Kernel Discrimination Applied to Bank Loan classification (on site)

Jim Freeman, Haoyu Miao
Blackjack and the Kelly bet: a simulation assessment of selected playing strategies (on site)

Oladapo T. Ibitoye
Development of a Neural Network Based Vehicle License Plate Recognition System (virtual)

Oswaldo Dias Lopes da Silva, Áurea Sandra Toledo de Sousa, Helena Bacelar-Nicolau
Hierarchical Cluster validation in context of comparison and evaluation of partitions

13:30- 14:30 Lunch

14:30-16:30
SCS19
Special and Contributed Sessions

Advances in Social Research Methods

Invited Session Chair: Maria Symeonaki

Aggeliki Yfanti, Catherine Michalopoulou
The demographic, social and regional "profile" of peoples' perceptions of their social class: Evidence from the 7th wave of the World Values Survey, 2017-2020 (virtual)

Anastasia Charalampi, Catherine Michalopoulou, Clive Richardson
Exploring cross-national comparability of unidimensional constructs (virtual)

Chrysoula Zerva and Maria Symeonaki
Machine learning and natural language processing as social research tools: Applications and challenges
(virtual)

Aggeliki Kazani, George Filandrianos, Maria Symeonaki and Giorgos Stamou
Semantic integration of data: from theory to social research practice (virtual)

George Filandrianos, Aggeliki Kazani, Parsanoglou Dimitios, Giorgos Stamou and Maria Symeonaki
Introducing an ontology of adolescents' digital leisure (virtual)

Aliki Symeonaki, Maria Symeonaki
To read on not to read? Examining the relation between students' well-being and their attitude towards reading (virtual)

16:30-16:45 Coffee Break

16:45-18:15
SCS20
Special Session
Chairs: Teresa A. Oliveira & Amílcar Oliveira

Statistical Modelling and Data Analysis

Fernanda Otilia Figueiredo, Adelaide Maria Figueiredo
Walking to the Digital Era: Comparison of the European Countries in the last decade (virtual)

Adelaide Figueiredo, Fernanda Figueiredo
A three-way analysis for monitoring the Europe 2020 strategy's targets (virtual)

M. Filomena Teodoro, Sofia Teles, Marta C. Marques and Francisco G. Guerreiro
Hyperbaric Oxygen Therapy - Is It a Safe Therapeutic?

Amílcar Oliveira, Teresa A. Oliveira and José António Seijas-Macias
The extended Skew-Normal Distribution on the Product of two Normal Variables: computational simulations
(on site)

Pereira, J.A., Abreu, F., Mendes, L., and Oliveira, T.
Allostatic Load Quantification and Impact on Periodontal Health a Fuzzy Clustering Approach (virtual)

Teresa A. Oliveira and Sara Pires
Features and Topics of Combinatorial Designs with one factor (on site)

18:15- 18:30 Preparation, interconnections

18:30-19:10
Plenary Session IV
Room 1 (PS7)
Chair: Christos H Skiadas
Speaker: **Elena Babatsouli**
Communicative Disorders Department
University of Louisiana at Lafayette, USA
Title: Staircase probability distributions of speech measures in children (on site)

19:10-19:30
Muses
Closing Ceremony

End of the Conference