# PROGRAM

**17th Applied Stochastic Models and Data Analysis International Conference with Demographics Workshop**

## ASMDA2017

**6 - 9 June 2017**

**London, UK**

# Preface

It is our pleasure to welcome the guests, participants and contributors to the International Conference (ASMDA 2017) on Applied Stochastic Models and Data Analysis and (DEMOGRAPHICS2017) Demographic Analysis and Research Workshop.

The main goal of the conference is to promote new methods and techniques for analyzing data, in fields like stochastic modeling, optimization techniques, statistical methods and inference, data mining and knowledge systems, computing-aided decision supports, neural networks, chaotic data analysis, demography and life table data analysis.

ASMDA Conference and DEMOGRAPHICS Workshop aim at bringing together people from both stochastic, data analysis and demography areas. Special attention is given to applications or to new theoretical results having potential of solving real life problems.

ASMDA 2017 and DEMOGRAPHICS 2017 focus in expanding the development of the theories, the methods and the empirical data and computer techniques, and the best theoretical achievements of the Applied Stochastic Models and Data Analysis field, bringing together various working groups for exchanging views and reporting research findings.

We thank all the contributors to the success of these events and especially the speakers. Many thanks to the honorary guest Gilbert Saporta and the Colleagues contributed in his special session on data analysis. Special thanks to the Plenary, Keynote and Invited Speakers, the Session Organisers, the Scientific Committee, the ISAST Committee, Yiannis Dimotikalis, Aristeidis Meletiou, the Conference Secretary Mary Karadima, and all the members of the Secretariat.

May 2017

Christos H. Skiadas
Conference Chair

## ASMDA Conferences and Organizers

1st ASMDA 1981 Brussels, Belgium. Jacques Janssen

2nd ASMDA 1983 Brussels, Belgium. Jacques Janssen

3rd ASMDA 1985 Brussels, Belgium. Jacques Janssen

4th ASMDA 1988 Nancy, France. J. Janssen and Jean-Marie Proth

5th ASMDA 1991 Granada, Spain. Mariano J. Valderrama

6th ASMDA 1993 Chania, Crete, Greece. Christos H Skiadas

7th ASMDA 1995 Dublin, Ireland. Sally McClean

8th ASMDA 1997 Anacapry, Italy. Carlo Lauro

9th ASMDA 1999 Lisbon, Portugal. Helena Bacelar-Nicolau

10th ASMDA 2001 Compiègne, France. Nikolaos Limnios

11th ASMDA 2005 Brest, France. Philippe Lenca

12th ASMDA 2007 Chania, Crete, Greece. Christos H Skiadas

13th ASMDA 2009 Vilnious, Lithouania. Leonidas Sakalauskas

14th ASMDA 2011 Rome, Italy. Raimondo Manca

15th ASMDA 2013 Mataró (Barcelona), Spain. Vladimir Zaiats

16th ASMDA 2015 Piraeus, Greece. Sotiris Bersimis

17th ASMDA 2017 London, UK. Christos H Skiadas

# SCIENTIFIC COMMITTEE

Alexander Andronov, Transport and Telecom. Institute, Riga, Latvia
Vladmir Anisimov, Research Statistics Unit. GlaxoSmithKline
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Enrico Canuto, Dipart. di Automatica e Informatica, Politec. di Torino, Italy
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Maria Mercè Claramunt, Barcelona University, Spain
Marco Dall'Aglio, LUISS Rome, Italy
Guglielmo D'Amico, University of Chieti and Pescara, Italy
Pierre Devolder, Université Catholique de Louvaine, Belgium
Giuseppe Di Biase, University of Chieti and Pescara, Italy
Yiannis Dimotikalis, Technological Educational Institute of Crete, Greece
N. Farmakis, Aristotle University of Thessaloniki, Greece
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Natalia Gavrilova, Center on Aging, NORC at the University of Chicago, USA
A. Giovanis, Technological Educational Institute of Athens, Greece
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Montserrat Guillen University of Barcelona, Spain
Steven Haberman, Cass Business School, City University, London, UK
Diem Ho, IBM Company
J. Janssen, EURIA et ENST-Bretagne, Brest, France and JACAN, Tubize, Belgium
Emilia Di Lorenzo, University of Naples, Italy
Aglaia Kalamatianou, Panteion Univ. of Political Sciences, Athens, Greece
Udo Kamps, Inst. fur Stat. und Wirtschaftsmath., RWTH Aachen, Germany
Alex Karagrigoriou, University of Cyprus, Cyprus
A. Katsirikou, University of Piraeus, Greece
Wlodzimierz Klonowski, Lab. Biosign. An. Fund., Polish Acad of Sci, Poland

# Plenary/Keynote Talks
# For ASMDA Conference

In celebration of Gilbert Saporta's 70th birthday and in honour of his contributions to Applied Statistics and Data Analysis and his support to ASMDA activities

**Gilbert Saporta**
Emeritus Professor of Applied Statistics
Conservatoire National des Arts et Métiers (CNAM)
Paris, France

**N. Balakrishnan**
Department of Mathematics and Statistics
McMaster University
Hamilton, Ontario, Canada

**Robert J. Elliott**
Haskayne School of Business,
University of Calgary, Canada and
Centre for Applied Financial Studies,
University of South Australia,
Adelaide, Australia

**Sally McClean**
School of Computing and Information Engineering
Ulster University
Coleraine
Northern Ireland

**Fabrizio Ruggeri**
CNR IMATI
Via Bassini 15
Milano, Italy

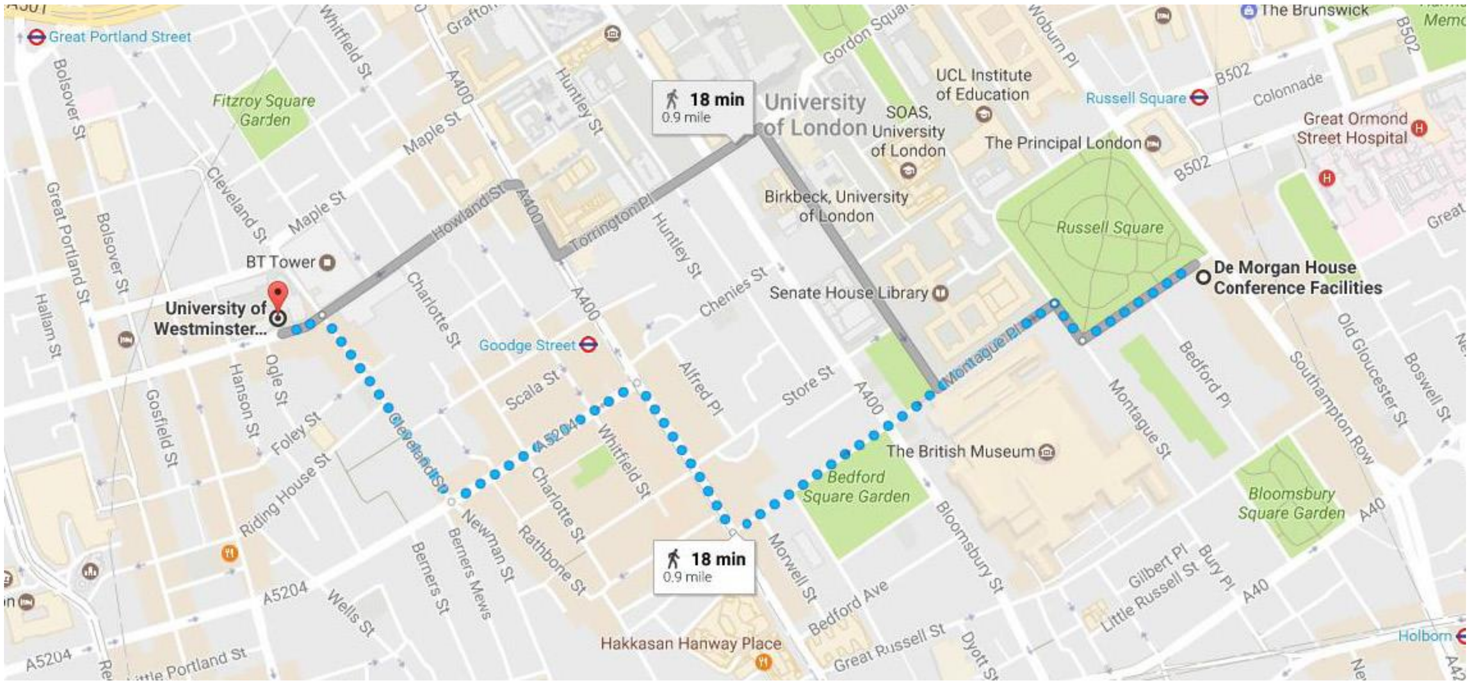
**Anatoliy Swishchuk**
Department of Mathematics and Statistics
University of Calgary, Canada

**P.-C.G. VASSILIOU**
Department of Statistical Sciences,
University College London, UK

## For Demographics Workshop

**Jean-Marie Robine**
Université Montpellier 2, Place Eugène Bataillon
Montpellier, France

**Rebecca Kippen**
Rural Health,
Monash University
Victoria, Australia



Great Portland Street
Fitzroy Square Garden
Whitfield St
Grafton
A400
Huntley St
18 min
0.9 mile
University of London
Gordon Square
Woburn Pl
The Brunswick
UCL Institute of Education
SOAS, University of London
Russell Square
B502
Colonnade
Great Ormond Street Hospital
The Principal London
Maple St
Bolsover St
Cleveland St
Great Portland St
Birkbeck, University of London
Howland St
Torrington Pl
Russell Square
BT Tower
Charlotte St
Chenies St
Senate House Library
De Morgan House Conference Facilities
University of Westminster...
Hallam St
Goodge Street
Ogle St
Hanson St
Gosfield St
Foley St
Scala St
Alfred Pl
Store St
A5204
Whitfield St
Montague Pl
Montague St
Bedford Pl
Southampton Row
Old Gloucester St
Boswell St
Riding House St
Cleveland St
Newman St
Berners Mews
Berners St
Rathbone St
The British Museum
Bedford Square Garden
Bloomsbury Square Garden
Bloomsbury St
Morwell St
18 min
0.9 mile
Wells St
Gilbert Pl
Little Russell St
Bury Pl
A40
Bedford Ave
Hakkasan Hanway Place
Great Russell St
Dyott St
Holborn
A5204
Little Portland St

## 17th Applied Stochastic Models and Data Analysis International Conference (ASMDA2017)

## with Demographics 2017 Workshop

**6-9 June, 2017, London, UK**

# Program

| Session / Room | Date / Time | Authors / Talk Title / Event | Authors / Talk Title / Event |
|---|---|---|---|
| **University of Westminster Cavendish House** | 8:00-9:15 | **Tuesday June 6** | **Registration** |
| **Large Lecture Theatre 115 New Cavendish St** | 9:15-9:30 | **Opening Ceremony** | |
| **Large Lecture Theatre** | **9:30-10:20** | **Honorary Speech (Chair: Pieter M. Kroonenberg)**<br>**Gilbert Saporta**<br>Conservatoire National des Arts et Métiers (CNAM) Paris, France | **50 years of data analysis: from EDA to predictive modelling and machine learning** |
| | 10:20-10:40 | | **Coffee Break** |
| **Large Lecture Theatre** | **10:40-11:20** | **Plenary Session (Chair: Sally McClean)**<br>**Robert J. Elliott**<br>Haskayne School of Business, University of Calgary, Canada and<br>Centre for Applied Financial Studies, University of South Australia, Adelaide, Australia | **MALLIAVIN CALCULUS IN A BINOMIAL FRAMEWORK** |
| **Large Lecture Theatre** | **11:20-12:00** | **Plenary Session (Chair: Valérie Girardin)**<br>**Fabrizio Ruggeri**<br>CNR IMATI, Italy | **Recent Advances in Adversarial Risk Analysis** |
| **De Morgan House** | **12:00-12:20** | **From University of Westminster to De Morgan House (see map 18 min)** | |
| | **12:30-13:30** | **De Morgan House (57-58 Russell Square, Bloomsbury)** | **Lunch** |

| SCS1 | Tuesday June 6 | **SPECIAL AND CONTRIBUTED SESSIONS SCS1** | |
|---|---|---|---|
| **Hardy Room** | 13:30-15:15 | **Invited Session Chair: Raimondo Manca and Dmitrii Silvestrov** | **Semi-Markov Processes: Models and Algorithms** |
| | | Doubly Recurrent Algorithms for Mixed Power-Exponential Moments of Hitting Times for Semi-Markov Processes | Dmitrii Silvestrov, Raimondo Manca |
| | | Asymptotic Recurrent Algorithms for Nonlinearly Perturbed Semi-Markov Processes | Sergei Silvestrov, Dmitrii Silvestrov |
| | | Modeling trading duration, volume and returns by means of vector indexed semi-Markov chains | Guglielmo D'Amico, Filippo Petroni |
| | | Optimal provision of a dispatchable energy source for wind energy management: dependence on the wind energy model | Guglielmo D'Amico, Filippo Petroni, Robert Adam Sobolewski |
| | | Financial risk distribution in European Union | Guglielmo D'Amico, Stefania Scocchera, Loriano Storchi |
| | | Hitting Times for Claim Number in Car Insurance Setting | Guglielmo D'Amico, Fulvio Gismondi, Jacques Janssen, Raimondo Manca, Filippo Petroni, Dmitrii Silvestrov |
| | | Step semi-Markov models and application to manpower management | Vlad Stefan Barbu, Guglielmo D'Amico, Raimondo Manca, Filippo Petroni |

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|---|---|---|---|
| **Cayley Room** | 13:30-15:00 | **Invited Session Chair: Vladimir Anisimov** | **Modern trends in predictive modelling clinical trials operation** |
| | | Predictive analytic modelling of clinical trials operation | Vladimir Anisimov |
| | | Estimates for Initializing Enrollment Models | Matthew Austin |
| | | Some issues in predicting patient recruitment in multi-centre clinical trials | Andisheh Bakhshi, Stephen Senn, Alan Phillips |
| | | Human Factors: Coal Face Reality of Recruitment to Clinical Trials | Katharine D Barnard |
| | | Clinical trials simulation: Comparison of Discrete Method, Continuous Method and Copula Method for virtual Patients' generation | Nicolas Savy, Philippe Saint-Pierre, Sébastien Déjean, Stéphanie Savy, Sébastien Marque |
| | | Simulation before, during, and after a clinical trial: A Bayesian approach | Stephen D. Simon |

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| **Burnside Room** | 13:30-15:00 | **Special Session Chairs: Giuseppe Giordano and Maria Russolillo** | **Modeling and Exploring Mortality Data. Methods, Software and Applications** |
| | | The Impact of Mortality Projection Models in case of flexible retirement schemes | Mariarosaria Coppola, Maria Russolillo, Rosaria Simone |
| | | Effect of Statin Prescription on Individual and on Population Life expectancy | Elena Kulinskaya, Lisanne Gitsels, Ilyas Bakbergenuly |
| | | Methodological issues in the three-way decomposition of mortality data | Giuseppe Giordano, Steven Haberman, Maria Russolillo |
| | | Longevity trends and their impact on life expectancy and annuity values – how fast are they changing? | Steven Haberman, Zoltan Butt |
| | | Modelling non-anticipated longevity shocks under Lee-Carter Model | Eliseo Navarro, Pilar Requena |
| **Sylvester Room** | 13:30-15:15 | **Chairs: Valery Antonov, Anatoly Kovalenko** | **Demographics I** |
| | | Medical and Demographic Consequences of the Stressful Living Conditions | Valery Antonov, Anatoly Kovalenko, Konstantin Lebedinskii |
| | | Decomposition of marital status differences in life expectancy by age in the Czech Republic | Tomas Fiala, Jitka Langhamrova |
| | | Reliability of decrease rates for cardiovascular mortality in Russia | Tamara P. Sabgayda, Victorya G. Semyonova |
| | | A bivariate mixed-type distribution with applications to reliability | Alessandro Barbiero |
| | | Some Asymptotic Results for Truncated-Censored and Associated Data | Zohra Guessoum, Abdelkader Tatachak |
| | 15:00-15:30 | **Coffee Break** | |

| SCS2 | Tuesday June 6 | SPECIAL AND CONTRIBUTED SESSIONS SCS2 | |
|---|---|---|---|
| **Hardy Room** | 15:30-16:30 | **Invited Session Chair: Mark Brown** | **Diverse topics in applied probability** |
| | | Taylor's Law via Ratios, for Some Distributions with Infinite Mean | Mark Brown |
| | | Sharp Bounds for Exponential Approximations of NWUE Distributions | Mark Brown, Shuangning Li |
| | | Optimal Policies for MDPs with unknown parameters | Michael N. Katehakis |
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| **Cayley Room** | 15:30-16:30 | **Invited Session Chairs: M. Molina and E. Yarovaya** | **Stochastic Models for Dynamical Systems I** |
| | | Optimal Sustainable Constant Effort Fishing Policies in Random Environments | Carlos A. Braumann, Nuno M. Brites |
| | | Stochastic Models for Biological Populations with Sexual Reproduction | Manuel Molina, Manuel Mota, Alfonso Ramos |
| | | Defective Galton-Watson processes | Serik Sagitov, Carmen Minuesa |
| | | Operator Models in Theory of Branching Random Walks and their Applications | Elena Yarovaya |
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| **Burnside Room** | 15:30-16:30 | **Special Session Chair: Christina Erlwein-Sayer** | **Financial Modelling: regime-switching, sentiment and asset allocation** |
| | | Portfolio strategies and filtering within regime-switching models | Christina Erlwein-Sayer, Stefanie Grimm, Peter Ruckdeschel, Joern Sass, Tilman Sayer |
| | | An Interest-Rate Model with an Unobservable Mean-Reversion Level | Stefanie Grimm, Christina Erlwein-Sayer, Rogemar Mamon |
| | | Electricity spot price modelling using a higher-order HMM | Rogemar Mamon, Heng Xiong |
| | | News Augmented GARCH(1,1) Model for Volatility Prediction | Zryan Sadik, Paresh Date |
| | | | |
| **Sylvester Room** | 15:30-16:30 | **Chair: Jitka Langhamrová** | **Risk - Insurance** |
| | | Risk factors of Severe Cognitive Impairment in the Czech Republic | Kornélia Cséfalvaiová, Jitka Langhamrová |
| | | A new family of premium principles obtained by a risk-adjusted distribution | Miguel Ángel Sordo, Antonia Castaño, Gema Pigueiras |
| | | At-Risk-of-Poverty or Social Exclusion Rate – Regional Aspects in the Slovak and Czech Republic and International Comparison | Iveta Stankovicová, Jitka Bartošová, Vladislav Bína |
| | | FISS- THE FACTOR BASED INDEX OF SYSTEMIC STRESS | Tibor Szendrei, Katalin Varga |

| SCS3 | Tuesday June 6 | SPECIAL AND CONTRIBUTED SESSIONS SCS3 | |
|---|---|---|---|
| **Hardy Room** | 16:30-17:30 | **Invited Session Chair: Ekaterina Bulinskaya** | **Stochastic Models for Dynamical Systems II** |
| | | Asymptotic Analysis and Optimization of Insurance Company Performance | Ekaterina Bulinskaya |
| | | On Quantum Information Characterization of Markov and non-Markov Dynamics of Open Quantum Systems | Andrey Bulinski |
| | | Multivariate Risk Models and Their Applications | Yury Khokhlov, Olga Rumyantseva |
| | | Stochastic Forecast Model of Severe Storm Wind over Territory of Northern Europe and England | Elvira Perekhodtseva |
| **Cayley Room** | 16:30-17:30 | **Invited Session Chair: Stephane Chretien** | **Optimisation Methods for Machine Learning** |
| | | Online robust PCA | Hervé Cardot, Antoine Godichon-Baggioni |
| | | Non-Convex structured Robust PCA | Stephane Chretien |
| | | Robust Ranking via Eigenvector and Semidefinite Programming Synchronization | Mihai Cucuringu |
| | | SNIPE for Memory-Limited PCA with Incomplete Data: From Failure to Success | Armin Eftekhari, Laura Balzano, Michael B. Wakin, Dehui Yang |
| **Burnside Room** | 16:30-17:30 | **Chair: Jan Ámos Víšek** | **Regression Issues** |
| | | Are the leverage point the most terrible problem in regression? | Jan Ámos Víšek |
| | | The Flexible Beta Regression Model | Sonia Migliorati, Agnese M. Di Brisco Andrea Ongaro |
| | | Statistical analysis of regression models under grouping of the dependent variable | Helena Ageeva, Yuriy Kharin |
| | | Formulation of the Mean Squared Error for Logistic Regression. An Application with Credit Risk Data | Eva Boj del Val, Teresa Costa Cor |
| **Sylvester Room** | 16:30-17:30 | **Invited Session Chairs: Aglaia Kalamatianou and Franca Crippa** | **Data analysis in the Social Sciences** |
| | | Measuring latent variables in space and/or time. A latent markov model approach | Gaia Bertarelli, Franca Crippa, Fulvia Mecatti |
| | | Random effects models in item analysis: exploring applications in autobiographical memory | Angela Tagini |
| | | Random Utility Models in a stated preference approach. Some considerations on the transition from university to work | Paolo Mariani, Andrea Marletta, Mariangela Zenga |
| | | Joint models for time-to-event and bivariate longitudinal data: a likelihood approach | Marcella Mazzoleni, Mariangela Zenga |
| | | Context-specific independence in technology study | Federica Nicolussi, Manuela Cazzaro |
| | 17.30- | | **Welcome Reception** |

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| | | **Wednesday June 7** | |
| **SCS4** | **Wednesday June 7** | **SPECIAL AND CONTRIBUTED SESSIONS SCS4** | |
| **Hardy Room** | 8.30-10.15 | **Invited Session Chairs: Adele H Marshall and Sally McClean** | **Healthcare Session** |
| | | A discrete piecewise multi-state survival model: Application to breast cancer | Juan Eloy Ruiz Castro, Mariangela Zenga |
| | | Some results on the detection of CpG islands via hidden semi Markov modelling | Zacharias Kyritsis, Aleka Papadopoulou, Sally McClean |
| | | Modelling patient waiting time in emergency departments using Coxian phase-type distributions | Adele H. Marshall, Laura M. Boyle, Mark Mackay |
| | | Improving Rexpokit's Krylov Subspace Matrix Exponential Methods for Markov Processes | Meabh G. McCurdy, Karen J. Cairns, Adele H. Marshall |
| | | The variances and covariances of the macro state sizes via the micro state sizes in semi Markov modeling for a healthcare system | Aleka Papadopoulou, Sally McClean, Zacharias Kyritsis, Lalit Garg |
| **Cayley Room** | 8.30-10.15 | **Invited Session Chair: Rustam Ibragimov** | **Theory of Majorization, Stochastic Inequalities and Their Applications** |
| | | Diversification Analysis in Value at Risk Models under Heavy-Tailedness and Dependence | Suzanne Burns |
| | | Income Inequality and Price Elasticity of Market Demand: The Case of Crossing Lorenz Curves | Marat Ibragimov, Rustam Ibragimov, Paul Kattuman, Jun Ma |
| | | Optimal Bundling Strategies for Complements and Substitutes with Heavy-Tailed Valuations and Related Problems | Rustam Ibragimov, Artem Prokhorov, Johan Walden |
| | | Exact Lower Bounds for the Agnostic Probably-Approximately-Correct (PAC) Machine Learning Model | Aryeh Kontorovich, Iosif Pinelis |
| | | Majorization and Stochastic Orders in Secure Communications | Pin-Hsun Lin, Holger Boche, Eduard Jorswieck |
| | | Schur properties of convolutions of gamma random variables with applications in RandNLA | Farbod Roosta-Khorasani |
| **Burnside Room** | 8.30-10.15 | **Chair: Mark Brown** | **Demographics II** |
| | | Fitting Markovian binary trees using global and individual demographic data | Sophie Hautphenne, Katharine Turner, Melanie Massaro |
| | | Accounting for model uncertainty in mortality projection | Andrés Benchimol, J. Miguel Marin, Irene Albarrán, Pablo Alonso-González |
| | | Migration component in health losses of population in Russian megapolis (for example of Moscow) | Victorya G. Semyonova, Tamara P. Sabgayda, Svetlana Yu. Nikitina |
| | | Prospective scenarios of death coverage of the Northeast Brazil | Neir Antunes Paes, Alisson dos Santos Silva |
| | | Further exploration of the existence of a limit to human life span | Christos H. Skiadas, Charilaos Skiadas |
| | | Dealing with Inaccuracies and Limitations of Empirical Mortality Data in Small Populations | K. Zafeiris, A. Kostaki |
| | | Health estimates for some countries of the rapid developing world | K. N. Zafeiris, C. H. Skiadas |

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| **Sylvester Room** | 8.30-10.00 | **Invited Session Chair: Maria Symeonaki** | **LABOUR MARKET TRANSITIONS** |
| | | Employers' assessments on hiring: results from a vignette experiment | Dimitris Parsanoglou, Aggeliki Yfanti |
| | | Labour Market flows in Europe: Evidence from the EU-LFS | Maria Symeonaki, Glykeria Stamatopoulou, Maria Karamessini |
| | | Investigating Southern Europeans' Perceptions of Their Employment Status | Aggeliki Yfanti, Catherine Michalopoulou, Aggelos Mimis, Stelios Zachariou |
| | | On the Measurement of Early Job Insecurity in Europe | Maria Symeonaki, Glykeria Stamatopoulou, Maria Karamessini |
| | | Monitoring the compliance of countries on emissions mitigation, using dissimilarity indices | Ketzaki Eleni, Rallakis Stavros, Farmakis Nikolaos, Eftichios Sartzetakis |
| | 10:00-10:30 | | **Coffee Break** |
| **SCS5** | **Wednesday June 7** | **SPECIAL AND CONTRIBUTED SESSIONS SCS5** | |
| **Hardy Room** | 10.30-11.30 | **Chair: Christos Skiadas, Co-Chair: Claude Lefèvre** | **Demographics III** |
| **Invited Talk** | 10:30-11:00 | **Jean-Marie Robine**<br>Université Montpellier 2, Place Eugène Bataillon, Montpellier, France | Is the longevity revolution compatible with our models of healthy ageing and/or successful ageing? |
| **Contributed Talk** | 11:00-11:15 | Using Child, Adult, and Old-age Mortality to Establish a Life-table Database for Developing Countries | Nan Li, Hong Mi, Patrick Gerland |
| **Contributed Talk** | 11:15-11:30 | Estimation of the Healthy Life Expectancy in Italy through a Simple Model based on Mortality Rate | Christos Skiadas, Maria Felice Arezzo |
| **Cayley Room** | 10.30-11.30 | **Invited Session Chair: Hanna Livinska** | **Queueing models** |
| | | Switching Processes in Queueing Models | Vladimir Anisimov |
| | | Sojourn time and busy period in a discrete-time queueing system with different arrival information | Ivan Atencia |
| | | On Multi-Channel Stochastic Networks with Time-Dependent Input Flows | Hanna Livinska, Eugene Lebedev |
| | | Diffusion Approximation of a Loss Queueing System | Nikolaos Limnios |

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| **Burnside Room** | 10.30-11.30 | **Chair: M. J. Valderrama** | **Data Analysis I** |
| | | The use of deviance plots for non-nested model selection in diverse models | Pieter M. Kroonenberg |
| | | Bibliometric variables determining the quality of a dentistry journal | Pilar Valderrama, Manuel Escabias, Evaristo Jiménez-Contreras, Alberto Rodríguez-Archilla |
| | | Highly dimensional classification using Tukey depth and bagdistance | Milica Bogicevic, Milan Merkle |
| | | “Big Data” Triangle and Modern Data Analysis | Subhadeep (“Deep") Mukhopadhyay |
| **Sylvester Room** | 10.30-11.30 | **Chair: Gaida Pettere** | **Models** |
| | | Non-Metric Partial Least Squares for Non-linear Structural Equation Model estimation | Giorgio Russolillo, Laura Trinchera |
| | | The Extended Flexible Dirichlet model: a simulation study | Roberto Ascari, Sonia Migliorati, Andrea Ongaro |
| | | Computing the Mutual Constrained Independence Model | Thomas Delacroix, Philippe Lenca, Stéphane Lallich |
| | | A joint mixed model for longitudinal data involving time-varying covariates | Reza Drikvandi |
| | | Behaviour of Multivariate Tail Dependence Coefficients | Gaida Pettere, Ilze Zarina, Irina Voronova |
| **SCS6** | **Wednesday June 7** | **SPECIAL AND CONTRIBUTED SESSIONS SCS6** | |
| **Hardy Room** | 11.30-12.45 | **Invited Session Chair: Robert Serfling** | **L-Moment and Quantile Methods in Multivariate and Time Series Analysis** |
| | | L-Comoments: Theory and Applications | Robert Serfling |
| | | Multivariate L-moments Statistical inference, with hydrological applications | Fateh Chebana |
| | | A Gini-based time series analysis and test for reversibility | Amit Shelef, Edna Schechtman |
| | | Multivariate L-moments defined through transport | Alexis Decurninge |
| | | Quantile Spectral Analysis of Time Series | Tobias Kley |
| **Cayley Room** | 11.30-12.45 | **Invited Session Chairs: Anatoliy Malyarenko** | **Stochastic methods in engineering, physics, and financial mathematics** |
| | | Lie Symmetries of the Black – Scholes Type Equations in Financial Mathematics | Asaph K. Muhumuza, Silvestrov Sergei, Anatoliy Malyarenko |
| | | Heavy-tailed fractional Pearson diffusions | N.Leonenko |
| | | Saturn rings: fractal structure and random field model | Martin Ostoja-Starzewski, Anatoliy Malyarenko |
| | | Tensor Random Fields in Conductivity and Classical or Microcontinuum Theories | Martin Ostoja-Starzewski, Anatoliy Malyarenko |
| | | Foreign Exchange Risk Analysis Using GARCH-EVT Model with Markov Switching | Carolyne Ogutu, Betuel Canhanga, Pitos Biganda, Ivivi Mwaniki, Anatoliy Malyarenko |
| | | Option pricing and model calibration under multifactor stochastic volatility and stochastic interest rate - an asymptotic expansion approach | Canhanga B., Malyarenko A., Ni Y., Rancic M., Silvestrov S. |

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| **Burnside Room** | 11.30-12.45 | **Chair: Teresa Oliveira, Co-Chair: Epaminondas G. Kyriakidis** | **Measurement - Control - Entropy** |
| | | Optimal control of a pest population through geometric catastrophes | Theodosis D. Dimitrakos, Epaminondas G. Kyriakidis |
| | | Real-time monitoring and control of industrial processes using electrical tomography data | Robert G Aykroyd |
| | | Goodness-of-fit tests based on entropy. Application to DNA replication. | Justine Lequesne, Valérie Girardin, Philippe Regnault |
| | | Dynamic measurement of poverty: modeling and estimation | Guglielmo D'Amico, Philippe Regnault |
| | | A stochastic single vehicle routing problem with a predefined sequence of customers and delivery of two similar products | Epaminondas G. Kyriakidis, Theodosis D. Dimitrakos, Constatinos Karamatsoukis |
| **Sylvester Room** | 11.30-12.45 | **Chair: M.J. Valderrama** | **Data Analysis Workshop** |
| | | Statfda, an easy to use tool for functional data analysis without expert knowledge | M. Escabias, Ana M. Aguilera, M. C. Aguilera-Morillo, M.J. Valderrama |
| | | ***The attendance is free. Please hold you PC to follow the examples*** | |
| | 12:30-13.30 | | **Lunch** |
| | | | |
| Excursion | 13.30-19.30 | | **Half Day Excursion** |

| Thursday June 8 | | | |
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| **Hardy Room** | | **Invited Talks (Chair: Raimondo Manca)** | |
| **Hardy Room** | 8:30-9:00 | **Carlos A. Coelho**<br>Centro de Matemática e Aplicações (CMA-FCT/UNL) and Mathematics Dept, Faculdade de Ciências e Tecnologia, Universidade Nova de Lisboa, Portugal | The Likelihood Ratio Test for the Equality of Mean Vectors when the Covariance Matrices are Block Compound Symmetric |
| **Hardy Room** | 9:00-9:30 | **M. Ivette Gomes**<br>CEAUL and DEIO, Faculdade de Ciências, Universidade de Lisboa, Portugal<br>Co-authors ( Paula Reis, Lúisa Canto e Castro, Sandra Dias) | Penultimate Approximations in Extreme Value Theory and Reliability of Large Coherent Systems |
| **Hardy Room** | 9:30-10:00 | **Claude Lefèvre**<br>ISFA, Lyon and ULB, Belgium | Epidemic Risk and Insurance Coverage |
| | 10:00-10:30 | | **Coffee Break** |
| **Hardy Room** | 10:30-11:10 | **Keynote Talk (Chair: P.-C.G. VASSILIOU )**<br>**Sally Mcclean**<br>Computer Science Research Institute, Ulster University, United Kingdom | Markov and semi-Markov models for Health and Social Care Planning |
| **Hardy Room** | 11:10-11:50 | **Keynote Talk (Chair: Sally McClean)**<br>**P.-C.G. VASSILIOU**<br>Dept of Statistical Sciences, University College London, United Kingdom | LAWS OF LARGE NUMBERS FOR NON-HOMOGENEOUS MARKOV SYSTEMS |
| **Hardy Room** | 11:50-12.30 | **Keynote Talk (Chair: Nikolaos Limnios)**<br>**Anatoliy Swishchuk**<br>Dept of Mathematics and Statistics, University of Calgary, Canada | Financial Mathematics: Historical Perspectives and Recent Developments |

| **SCS7** | **Thursday June 8** | **SPECIAL AND CONTRIBUTED SESSIONS SCS7** | |
|---|---|---|---|
| **Cayley Room** | 8.30-10.00 | **Invited Session Chair: Vilijandas Bagdonavičius** | **Accelerated life models and their applications I** |
| | | ALT modeling when the AFT model fails | Vilijandas Bagdonavičius, Rūta Levulienė |
| | | Semi-parametric consistent estimators for recurrent event times models based on parametric virtual age functions | Eric Beutner, Laurent Bordes, Laurent Doyen |
| | | Statistical Inference in a model of Imperfect Maintenance with Geometric Reduction of Intensity | J.-Y. Dauxois, S. Gasmi, O. Gaudoin |
| | | Stratified logrank test under missing data | Jean-François Dupuy, Rim Ben Elouefi |
| | | A new generalized class of bivariate distributions based on latent random variables | Manuel Franco, Juana-Maria Vivo, Debasis Kundu |
| | | Towards prediction of catastrophic failure events of laser-induced damage in optical laser elements | Povilas Grigas, Rūta Levulienė, Vilijandas Bagdonavičius, Andrius Melninkaitis |

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| **Burnside Room** | 8.30-10.15 | **Invited Session Chair: Giuseppina Albano** | **Stochastic models in dynamic systems** |
| | | A semiparametric model in environmental data | Giuseppina Albano, Michele La Rocca, Cira Perna |
| | | Diffusions and generalised logistic dynamics | Antonio Barrera-García, Patricia Román-Román, Francisco Torres-Ruiz |
| | | Optimal portfolio strategies and derivative products under insider information | Bernardo D'Auria, Carlos Escudero Liebana |
| | | Linear Approximation of Nonlinear Threshold Models | Francesco Giordano, Marcella Niglio, Cosimo D. Vitale |
| | | On Fractional stochastic modeling for biological dynamics | Enrica Pirozzi |
| | | Some remarks on the Prendiville model in the presence of catastrophes | Virginia Giorno, Serena Spina |
| **Sylvester Room** | 8.30-10.00 | **Invited Session Chair: Krzysztof Kolowrocki** | **Safety and Reliability of Critical Infrastructures and Complex Systems I** |
| | | Designing critical infrastructure network with cascading for predefined safety level | Agnieszka Blokus-Roszkowska, Krzysztof Kolowrocki |
| | | Analysis of the crude oil transfer process and its safety | Agnieszka Blokus-Roszkowska, Bozena Kwiatuszewska-Sarnecka, Pawel Wolny |
| | | Statistical identification of critical infrastructure accident consequences process, Part 1, Process of initiating events | Magda Bogalecka, Krzysztof Kolowrocki |
| | | Statistical identification of critical infrastructure accident consequences process, Part 2, Process of environment threats | Magda Bogalecka, Krzysztof Kolowrocki |
| | | Statistical identification of critical infrastructure accident consequences process, Part 3, Process of environment degradation | Magda Bogalecka, Krzysztof Kolowrocki |
| | | Modelling spread limitations of oil spills at sea | Sambor Guze, Krzysztof Kolowrocki, Jolanta Mazurek |
| | 10:00-10:30 | | **Coffee Break** |

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| **SCS8** | **Thursday June 8** | **SPECIAL AND CONTRIBUTED SESSIONS SCS8** | |
| **Cayley Room** | 10.30-11.30 | **Chair: Leda D. Minkova, Co-Chair: Zdeněk Fabián** | **Distributions** |
| | | Bivariate Non-central Polya-Aeppli process and applications | Leda D. Minkova |
| | | The score correlation coefficient | Zdeněk Fabián |
| | | A simple test of monotonicity and monotonicity-related properties | Javier Hidalgo, Tatiana Komarova |
| | | Improved Bounds for the Probability of Causation | A. Philip Dawid, Monica Musio |
| **Burnside Room** | 10.30-11.30 | **Invited Session Chair: Vilijandas Bagdonavičius** | **Accelerated life models and their applications II** |
| | | On multiple step stress model under order restriction | Debasis Kundu, Rahul and Namita Gautam |
| | | Residuals for the modelling of covariate effects in accelerated life models | Jan Terje Kvaløy, Bo Henry Lindqvist, Stein Aaserud |
| | | A generalized distribution family of the Freund bivariate exponential model | Juana-Maria Vivo, Manuel Franco, Debasis Kundu |
| | | Outlier detection and identification when the number of outliers is unknown | Lina Petkevicius, Vilijandas Bagdonavicius |
| **Sylvester Room** | 10.30-11.30 | **Chair: Jozef Komorník, Co-Chair: Samuel Kosolapov** | **Data Analysis - Applications** |
| | | Analysis of Dependencies between Growth Rates of GDP of V4 Countries Using 4--dimensional Vine Copulas | Jozef Komorník, Magda Komorníková, Tomáš Bacigál |
| | | Efficiency Evaluation of Multiple-Choice Exam | Evgeny Gershikov, Samuel Kosolapov |
| | | Analysis of the determinants and outputs of innovation in the Nordic countries | Cátia Rosário, António Augusto Costa, Ana Lorga da Silva |
| **SCS9** | **Thursday June 8** | **SPECIAL AND CONTRIBUTED SESSIONS SCS9** | |
| **Cayley Room** | 11.30-12.45 | **Invited Session Chair: James R. Bozeman** | **Mathematical Aspects of Voting** |
| | | Ordinal regression with geometrical objects predictors. An application to predict the garment size of a child | Sonia Barahona, Pablo Centella, Ximo Gual-Arnau, María Victoria Ibañez, Amelia Simó |
| | | Why Elections are Hard: A Game Theoretic Examination of Complex Strategic Interactions Among Multiple Political Candidates | Meredithe A. Jessup II, Darryl K. Ahner |
| | | Redistricting Spain. A proposal for an unbiased system | Jose M. Pavía, Alberto Penadés |
| | | Partisan bias in multimember districts | Alberto Penadés |
| | | Experiment with a Survey-Based Election to the Student Parliament of the Karlsruhe Institute of Technology | Andranik Tangian |
| | | Measuring the Shape of Voting Districts with Unchangeable Boundary | James R. Bozeman, Ryleigh E. Costigan, Abby Salvadore |

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| **Burnside Room** | 11.30-12.15 | **Invited Session Chair: Marcello Chiodi** | | **Some recent development on space-time modelling** |
| | | Clustering of spatially dependent data streams based on histogram summarization | | Antonio Balzanella, Rosanna Verde, Antonio Irpino |
| | | An ANOVA-type procedure for replicated spatial and spatio-temporal point patterns | | Jorge Mateu, Jonatan Gonzalez-Monsalve, Ute Hahn, Bernardo Lagos |
| | | Some extensions in space-time LGCP: application to earthquake data | | Marianna Siino, Giada Adelfio, Jorge Mateu |
| | 12.15-12.45 | **Session Chair: A.N. Gorban** | | **New Methods in Data Analysis** |
| | | Piece-wise Quadratic Approximations of Subquadratic Error Functions for Machine Learning | | A.N. Gorban, E.M. Mirkes, A. Zinovyev |
| | | Blessing of Dimensionality: One-Trial Correction of Legacy AI Systems in High Dimension | | A.N. Gorban, I. Romanenko, R. Burton, I.Y. Tyukin |
| | Poster | Sparsity Against Exponential Complexity: Parallel Implementation of Separate Testing of Inputs. Authorship Attribution via Sparse Stochastic Context Trees Modeling | | Paul Grosu, Mikhail Malyutov, Javed Aslam, Hanai Sadaka, Virgil Pavlu, and Tong Zhang |
| | Short talk | Ronald Fisher and Andrey Kolmogorov: a distant uneasy relationship | | Mikhail Malyutov |
| **Sylvester Room** | 11.30-12.45 | **Chair: Valery Antonov** | | **Chaos-Fractals-Neural** |
| | | Identifying the boundaries application in the study of HRV | | Valery Antonov, Artem Zagainov |
| | | Interpolation using local iterated function systems | | Somogyi,I., Soos, A. |
| | | Development and application of multifractal analysis for EEG studies in a state of meditation and background | | Dmitrieva L.A, Zorina D.A, Kuperin Yu.A., Smetanin N.M. |
| | | Modeling of EEG signals by using artificial neural networks with chaotic neurons | | Dmitrieva L.A, Kuperin Yu.A, Mokin P.V |
| | 12:30-13.30 | | | **Lunch** |
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| **SCS10** | **Thursday June 8** | **SPECIAL AND CONTRIBUTED SESSIONS SCS10** | | |
| **Hardy Room** | 13.30-15.15 | **Invited Session Chair: Nikolaos Limnios** | | **New Trends in Markov and non-Markovian Models** |
| | | Asymptotic Analysis of Queueing Models by a Synchronization Method | | Larisa Afanaseva |
| | | Stability Analysis of a Queueing Cluster Model with a Regenerative Input Flow | | Larisa Afanaseva, Elena Bashtova |
| | | Stability Analysis of Multiserver Queueing System with a Regenerative Interruption Process | | Larisa G. Afanasyeva, Andrey Tkachenko |
| | | Limit Theorems for Infinity Chanel Queueing Systems with a Regenerative Input Flow | | Elena Bashtova, Ekaterina Chernavskaya |
| | | Limit Theorems for Queueing Systems with Different Service Disciplines | | Svetlana Grishunina |
| | | A Semimartingale Characterization of Semi-Markov Processes and Branching Processes with Transport of Particles | | Nikolaos Limnios, Elena Yarovaya |

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| **Cayley Room** | 13.30-15.15 | **Chair: Gilbert Saporta, Co-Chair: Cristian Preda** | **Data Analysis II** |
| | | Prediction for regularized clusterwise multiblock regression | Stéphanie Bougeard, Ndeye Niang, Gilbert Saporta |
| | | Clustering variables with nonlinear relationships: an approach based on polynomial transformation and a dynamic mixed criteria | Christian Derquenne |
| | | Thinking by classes and their symbolic description in Data Science | E. Diday |
| | | Insolvency as opportunity: a marketing perspective on time-dependent credit risk. | Caterina Liberati, Furio Camillo |
| | | Grouping Property and Relative Importance of predictors in Linear Regression | Henri Wallard |
| | | Contributions of Gilbert Saporta to functional data analysis | Cristian Preda |
| | | Importance of factors contributing to work-related stress: comparison of four metrics | Mounia N. Hocine, Natalia Feropontova, Ndèye Niang, Karim Aït-Bouziad, Gilbert Saporta |
| **Burnside Room** | 13.30-15.15 | **Chair: Jim Freeman, Co-Chair: Harald Hruschka** | **Models and Modeling** |
| | | Random network evolution models | István Fazekas, Csaba Noszály, Attila Perecsényi, Bettina Porvázsnyik |
| | | Hidden Variable Models for Market Basket Data | Harald Hruschka |
| | | Estimating Heterogeneous Time-Varying Parameters in Brand Choice Models | Winfried J. Steiner, Bernhard Baumgartner, Daniel Guhl, Thomas Kneib |
| | | On GARCH models with temporary structural changes | Norio Watanabe, Fumiaki Okihara |
| | | An SEM approach to modelling housing values | Jim Freeman, Xin Zhao |
| | | Nano-Sols Shelf-Life Prediction via Accelerated Degradation Model | Sheng-Tsaing Tseng |
| **Sylvester Room** | 13.30-15.00 | **Invited Talks (Chair: Dimitrios Sotiropoulos)** | |
| | 13.30-14.00 | **Christian Hennig**<br>Dept of Statistical Science, UCL, United Kingdom | Cluster validation: how to think and what to do? |
| | 14.00-14.30 | **Romney B Duffey**<br>DSM Associates Inc., USA | Search and Recall: Statistical Learning Theory |
| | 15:00-15:30 | | **Coffee Break** |

| SCS11 | Thursday June 8 | SPECIAL AND CONTRIBUTED SESSIONS SCS11 | |
|---|---|---|---|
| **Hardy Room** | 15:30-16:30 | **Invited Talks (Chair: Nikolaos Limnios)** | |
| | 15:30-16:00 | **Giovanni Barone Adesi**<br>Università della Svizzera italiana, Switzerland | Risk measures based on option prices and changes in the jump process of asset returns |
| | 16:00-16:30 | **Jeffrey Hunter**<br>School of Engineering, Computer and Mathematical Sciences,<br>Auckland University of Technology, New Zealand | Mean First Passage Times in Markov Chains – How best to compute? |
| **Cayley Room** | 15:30-16:30 | **Chair: Markos Koutras** | **Distributions** |
| | | The Compound Run Length Distribution: Properties and Applications | Athanasios C. Rakitzis, Markos V. Koutras |
| | | Compound distributions associated with order statistics | Markos V. Koutras, Vasileios M. Koutras |
| | | A biparametric version of the Univariate Generalized Waring distribution | Jose Rodríguez-Avi, Maria José Olmo-Jiménez, Valentina Cueva-Lopez |
| | | Adaptive MCMC for Multivariate Stable Distributions | Ingrida Vaiciulyte |
| **Burnside Room** | 15:30-16:30 | **Scan Statistics and Applications Invited Session Chair: Jie Chen** | **Scan Statistics and Applications** |
| | | Using scan statistics for the change detection in Granger causality | Jie Chen, Thomas Ferguson, Paul Jorgensen |
| | | Scan Statistics for Disease Clusters with Risk Adjustments | Wendy Lou |
| | | Scan statistics for dependent models | Cristian Preda |
| **Sylvester Room** | 15:30-16:30 | **Chair: Yiannis Dimotikalis, Co-Chair: Lino Sant** | **Estimators - Distributions - Forecasting** |
| | | Choosing tuning instruments for Generalized Rubin-Tucker Lévy Measure Estimators | Lino Sant, Mark Anthony Caruana |
| | | Entropic Analysis of Mixture Binomial Distributions applied to Online Ratings | Yiannis Dimotikalis |
| | | Forecasting with functional data: case study | Laurynas Naruševicius, Alfredas Rackauskas |
| | | Distribution of specific costs of agricultural production in the European Union: an approach based on the quantile regression method | Dominique Desbois |

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| **SCS12** | **Thursday June 8** | **SPECIAL AND CONTRIBUTED SESSIONS SCS12** | |
| **Hardy Room** | 16:30-17:30 | **Invited and Keynote Talks (Chair: Jean-Marie Robine)** | |
| | 16:30-17:00 | **Rebecca Kippen**<br>School of Rural Health, Monash University, Australia | Projecting life expectancy: A global history |
| | 17:00-17:30 | **Tapan K. Nayak**<br>Dept of Statistics, George Washington University, USA | Event and Its Location Detection in a Wireless Sensor Network |
| **Cayley Room** | 16:30-17:30 | **Invited Session Chair: Anatoliy Swishchuk** | **Stochastic Models in Finance and Energy Finance** |
| | | A local approach based on risk measures for the hedging of variable annuities | Denis-Alexandre Trottier, Frédéric Godin, Emmanuel Hamel, Richard Luger |
| | | Stochastic Modelling and Pricing of Energy Markets' Contracts with Local Stochastic Delayed and Jumped Volatilities | Anatoliy Swishchuk |
| | | Merging and diffusion approximation of stochastic epidemic models | Mariya Svishchuk |
| **Burnside Room** | 16:30-17:30 | **Chair: Josef Arlt, Co-Chair: Teresa Oliveira** | **Filtering - Forecasting - Graphs** |
| | | The Problem of the SARIMA Model Selection for the Forecasting Purpose | Josef Arlt, Peter Trcka, Markéta Arltová |
| | | Extremes in Random Graphs Models of Complex Networks | Natalia Markovich |
| | | Construction of Bivariate Probability Distributions Given the Marginals; General Case | Jerzy K. Filus and Lidia Z. Filus |
| | | Modeling Water Table Depth Fluctuation Using SSA – A study on risk of water scarcity | Rahim Mahmoudvand, Teresa. A Oliveira and Amílcar Oliveira |
| **Sylvester Room** | 16:30-17:30 | **Chair: Samuel Kosolapov** | **Bayes - Monte-Carlo** |
| | | Bayesian Multidimensional Item Response Theory Modeling Using Working Variables | Alvaro Montenegro, Luisa Parra |
| | | Robust Bayesian analysis using classes of priors | Sánchez-Sánchez, M., Sordo, M. A., Suárez-Llorens, A. |
| | | Monte-Carlo Accuracy Evaluation of Pintograph-based Laser Cutting Machine | Samuel Kosolapov |
| **PS** | 17.30- | **POSTER SESSION** (The list is at the end of the program) | **POSTER SESSION** |
| | 21.00-23.30 | | **Farewell Dinner** |

| Friday June 9 | | | |
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| SCS13 | Friday June 9 | SPECIAL AND CONTRIBUTED SESSIONS SCS13 | |
| Hardy Room | 8.30-10.15 | Chair: Dimitrios Sotiropoulos, Co-Chair: Teresa Oliveira | Data Analysis III |
| | | Selecting speech spectrograms to evaluate sounds in development | Dimitrios Sotiropoulos |
| | | An intervention analysis regarding the impact of the introduction of budget airline routes to Maltese tourism | Maristelle Darmanin, David Suda |
| | | Prevalence of Pediatric High Blood Pressure: a Preliminary Estimate | M. Filomena Teodoro, Carla Simão |
| | | Utilizing Customer Requirements' Data to Link Quality Management and Services Marketing Objectives | Andreas C. Georgiou, Kamvysi Konstantina, Gotzamani Katerina Andronikidis Andreas |
| | | Exploring BIBD and Related Designs Using R | Teresa A Oliveira and Amílcar Oliveira |
| | | The Feed Consumption and the Piglets' Growth during the Rearing Period Observed in 2015 VS Expected in 2005 | Marijan Sviben |
| Cayley Room | 8.30-10.15 | Chair: Nikolay Novitsky, Co-Chair: Christopher Engström | Models and Modeling II |
| | | A comprehensive study of Lattice Pricing beyond Black and Scholes | Carolyne Ogutu, Karl Lundengård, Ivivi Mwaniki, Sergei Silvestrov, Patrick Weke |
| | | Modelling a dynamic size biased sampling | P. Economou, G. Tzavelas, A. Batsidis |
| | | Modelling Dietary Exposure to Chemical Components in Heat-Processed Meats | Stylianos Georgiadis, Lea Sletting Jakobsen, Bo Friis Nielsen, Anders Stockmarr, Elena Boriani, Lene Duedahl-Olesen, Tine Hald, Sara Monteiro Pires |
| | | PROBABILISTIC MODELING OF HYDRAULIC CONDITIONS IN PIPELINE SYSTEMS UNDER A RANDOM SET OF BOUNDARY PARAMETERS AT NODES | Nikolay N.Novitsky, Olga V.Vanteyeva |
| | | PROBABILISTIC MODELING OF HYDRAULIC CONDITIONS OF PIPELINE NETWORKS UNDER RANDOM COMPOSITION OF BOUNDARY CONDITIONS AT NODES | Novitsky N.N., Vanteyeva O.V. |
| | | An approximation to social wellbeing evaluation using structural equation modeling | Leonel Santos-Barrios, Mónica Ruiz-Torres, William Gómez-Demetrio, Ernesto Sánchez-Vera, Ana Lorga da Silva, Francisco Martínez-Castañeda |

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| **Burnside Room** | 8.30-10.15 | **Invited Session Chair: Krzysztof Kolowrocki** | **Safety and Reliability of Critical Infrastructures and Complex Systems II** |
| | | Port oil transport critical infrastructure safety approximate evaluation | Krzysztof Kolowrocki, Joanna Soszynska-Budny |
| | | Safety prediction of critical infrastructure impacted by climate-weather change process | Krzysztof Kolowrocki, Joanna Soszynska-Budny |
| | | Simplified approach to safety prediction of port oil transport critical infrastructure related to operation process | Krzysztof Kolowrocki, Joanna Soszynska-Budny |
| | | Embedded Semi-Markov process as reliability model of two different units renewal cold standby system | Franciszek Grabski |
| | | Climate-weather change process realizations uniformity testing for maritime ferry operating area | Ewa Kuligowska, Mateusz Torbicki |
| | | Climate-weather change process realizations uniformity testing for port oil piping transportation system operating area | Ewa Kuligowska, Mateusz Torbicki |
| | | Identification and prediction of climate-weather change process for port oil piping transportation system and maritime ferry operation areas after successful uniformity testing | Ewa Kuligowska, Mateusz Torbicki |
| **Sylvester Room** | 8.30-10.15 | **Chair: Pedro Godinho** | **Stochastic Processes** |
| | | Comparison of Stochastic Processes | Jesús, E. García, V.A. González-López |
| | | Stochastic Distance between Burkitt lymphoma/leukemia Strains | Jesús, E. García, V.A. González-López |
| | | A multi-mode model for stochastic project scheduling with adaptive policies based on the starting times and project state | Pedro Godinho |
| | | An Application of Data Mining Methods to the Analysis of Bank Customer Profitability and Buying Behavior | Pedro Godinho, Joana Dias, Pedro Torres |
| | | Parameters Estimation of Stochastic Differential Equations Using First Passage Times and Inverse Gaussian Law | Samia MEDDAHI, Khaled KHALDI |
| | | Topic detection using the DBSCAN-Martingale and the Time Operator | Ilias Gialampoukidis, Stefanos Vrochidis, Ioannis Kompatsiaris, Ioannis Antoniou |
| | | Asymptotic Rate for Weak Convergence of Random Walk with a Generalized Reflecting Barrier | Tahir Khaniyev, Basak Gever, Zulfiye Hanalioglu |
| | | Asymptotics for a conditional quantile estimator under censoring and association | Wafaa Djelladj, Abdelkader Tatachak |
| | 10:00-10:30 | | **Coffee Break** |

| SCS14 | Friday June 9 | SPECIAL AND CONTRIBUTED SESSIONS SCS14 | |
|---|---|---|---|
| **Hardy Room** | 10:30-11:30 | **Invited Talks (Chair: Dimitrios Sotiropoulos)** | |
| | **10:30-11:00** | **Griselda Deelstra, Matthieu Simon**<br>Service Sciences Actuarielles, Département de Mathématique, Université libre de Bruxelles, Belgium | Multivariate European option pricing in a Markov-modulated Lévy framework |
| | **11:00-11:30** | **Tõnu Kollo, Meelis Käärik, Anne Selart**<br>Institute of Mathematics and Statistics, University of Tartu, Estonia | Asymptotic confidence regions of parameters of the skew normal distribution |
| **Cayley Room** | 10:30-11:30 | **Chair: Robert G Aykroyd, Co-Chair: Christopher Engström** | **Theoretical Issues** |
| | | Numerical Stability of the Escalator Boxcar Train under reducing System of Ordinary Differential Equations | Tin Nwe Aye, Linus Carlsson, Sergei Silvestrov |
| | | Evaluation of Stopping Criteria for Ranks in Solving Linear Systems | Benard Abola, Pitos Biganda, Christopher Engström, Sergei Silvestrov |
| | | Estimation of a Two Variable Second Degree Polynomial | Papatsouma Ioanna, Farmakis Nikolaos, Ketzaki Eleni |
| | | PageRank and Perron-Frobenius Theory in Analysis of Non-negative Matrices | Benard Abola, Sergei Silvestrov |
| **Burnside Room** | 10:30-11:30 | **Chair: Y. Kaniovski** | **Theory** |
| | | A heuristics for reducing the number of unknowns in models of dependent credit-rating migrations governed by industry-specific tendency variables | Y. Kaniovski, Y. Kaniovskyi, G. Pflug |
| | | Limit Theorems for Compound Renewal Processes: Theory and Applications | Nadiia Zinchenko |
| | | Bismut's way of the Malliavin Calculus for large order generators on a Lie group | Rémi Léandre |
| **Sylvester Room** | 10:30-11:30 | **Chair: Lino Sant, Co-Chair: Doncho Donchev** | **Markov - Stochastic** |
| | | Modelling grade seniority in manpower planning: Markov or semi-Markov? | Philippe Carette, Marie-Anne Guerry |
| | | Rates of approximation of integral functionals of Markov processes with applications | Iurii Ganychenko |
| | | Brownian motion exit densities for general one-sided boundaries | Doncho Donchev |
| | | A Realized p-Variation Random Function As a Statistical Diagnostic for Semimartingales | Lino Sant |

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| **SCS15** | **Friday June 9** | **SPECIAL AND CONTRIBUTED SESSIONS SCS15** | |
| **Hardy Room** | 11:30-12:20 | **Keynote Talk (Chair: Christos Skiadas)** | |
| | | **N. Balakrishnan**<br>Department of Mathematics and Statistics, McMaster University, Hamilton, Ontario, Canada | Multivariate Stochastic comparisons in Actuarial Science and Applications |
| **Cayley Room** | 11:30-12:30 | **Chair: Yiannis Dimotikalis** | **Queues - Renewal - Inventory - Neural** |
| | | Robust Analysis of Retrial Queues | Lounes Ameur, Louiza Berdjoudj, Karim Abbas |
| | | Join Moments for the Backward and Forward recurrence times | Losidis Sotirios, Konstadinos Politis |
| | | The Epistemic Uncertainty Analysis for the Inventory Management System with (Q,r) Policy | Massinissa Soufit, Karim Abbas |
| | | Estimation the Key Value of Shift Cipher by Neural Networks – A Case Study | Eylem Yucel, Ruya Samli |
| | | Frost Prediction in Apple Orchards Based Upon Time Series Models | Monika A. Tomkowicz, Armin O. Schmitt |
| **Burnside Room** | 11:30-12:30 | **Chair: Christopher Engström** | **Data Analysis - Matrix** |
| | | PageRank re-calculation methods based on specific types of changes in a graph | Christopher Engström, Sergei Silvestrov |
| | | Data Analysis of Nanoliquid Thin Film Flow over an Unsteady Stretching Sheet in Presence of External Magnetic Field | Prashant G Metri, Sergei Silvestrov |
| | | Extreme points of ordinary and generalized Vandermonde determinants | Jonas Österberg, Sergei Silvestrov, Karl Lundengård |
| **Sylvester Room** | 11:30-12:30 | **Chair: Gamze Özel Kadilar** | |
| | | Odd Log-Logistic Power Lindley Distribution with Theory and Lifetime Data Application | Gamze Özel Kadilar, Emrah Altun, Morad Alizadeh |
| | | On the behavior of the conditional quantile estimator for truncated-associated data | Latifa Adjoudj, Abdelkader Tatachak |
| | | Hazard rate estimator for right censored data under association | Samra Dhiabi, Ourida Sadki |
| | | Greece and India the countries of great heritages: Facing critical socio-economic crisis | Barun Kumar Mukhopadhyay |
| | 12:30 | **Closing Ceremony** | |
| | 12:40-13.30 | | **Lunch** |

| Excursion | Saturday June 10 (9:00-19:00) | Full Day Excursion |
|---|---|---|
| **PS** | **Poster Titles** | **Poster Authors** |
| | How to compute the rise time of the acquisition of consonants | Elena Babatsouli |
| | Influence of Missing Data on The Estimation of The Number of Components of a PLS Regression | F. Bertrand, T.A. Nengsih, M. Maumy-Bertrand, N. Meyer |
| | Empirical Power Study of the Jackson Exponentiality Test | Frederico Caeiro, Ayana Mateus |
| | Some remarks on limit results of the theory of discrete time branching processes | Azam A. Imomov |
| | The Mathematical Modeling of the Global Climatic Migration | Talgat R. Kilmatov |
| | Financial risk management modeling via random order statistics | V. M. Koutras, M. V. Koutras |
| | A New Distribution For The Fatigue Lifetime | Gamze Özel, Selen Cakmakyapan |
| | Comparing generalized mixed effects models with RE-EM tree method in corporate financial distress prediction | Lukáš Sobíšek, Maria Stachova |
| | Frost Prediction in Apple Orchards Based Upon Time Series Models | Monika A. Tomkowicz, Armin O. Schmitt |
| | Results on Multivariate Risk-Adjusted Survival Time CUSUM and EWMA Control Charts | Athanasios Sachlas, Stelios Psarakis, Sotiris Bersimis |
| | TRUNCATION OF MARKOV CHAINS WITH APPLICATIONS TO QUEUEING | Badredine Issaadi, Karim Abbas, Djamil Aïssani |
| | Price sensitivities for stochastic volatility models | Youssef El-Khatib, Abdulnasser Hatemi-J |
| | Mathematical aspects of the nuclear glory phenomenon: from backward focusing to Chebyshev polynomials | Vladimir B. Kopeliovich |
| | Rescaling of quantized skyrmions: from nucleon to baryons with heavy flavor | Vladimir B. Kopeliovich, Irina K. Potashnikovady |
| | Quantifying the sensitivity of bush bean and maize seed germination to soil oxygen using an oxygen-time threshold model | Behnam Behtari, Adel Dabbag, Mohammadi Nasab |
| | On the kernel hazard rate estimation under association and truncation | Abdelkader Tatachak, Zohra Guessoum |
| | The Half-logistic Lomax distribution for lifetime modeling | Masood Anwar, Jawaria Zahoor |
| | Predicting of least limiting water range (LLWR) of soil using MSECE model | Behnam Behtari, Adel Dabbag Mohammadi Nasab |
| | Sparsity Against Exponential Complexity: Parallel Implementation of Separate Testing of Inputs. Authorship Attribution via Sparse Stochastic Context Trees Modeling | Paul Grosu, Mikhail Malyutov, Javed Aslam, Hanai Sadaka, Virgil Pavlu, and Tong Zhang |
| | Assessment of clustering of deaths among families with declining levels of mortality in India, 1992-2006 | Mukesh Ranjan, L.K Dwivedi |
| | TRIBAL DEATH CLUSTERING IN CENTRAL AND EASTERN INDIAN STATES | Mukesh Ranjan, L.K Dwivedi |
| | Population explosion: challenges in management in the megacities of India | K. Shadananan Nair |
| | Planning and management of transport resources constraints | Abdelkader Lamamri, Imene Mehamdia |
| | Probability Weighted Moments Method for Pareto distribution | Frederico Caeiro, Ayana Mateus |
| | A neuro-fuzzy approach to measuring attitudes | Maria Symeonaki, Aggeliki Kazani, C. Michalopoulou |