

# SCIENTIFIC PROGRAM SMPS'2004 (‘PROVISIONAL’)

## Wednesday, September 1, 2004

**19:00** Welcoming Reception of the SMPS'2004 participants

## Thursday, September 2, 2004

**Thursday, September 2, 9:00–9:30** Conference Registration

**Thursday, September 2, 9:30–10:00** Opening Ceremony

**Thursday, September 2, 10:10–11:10**

Opening Lecture: *Probability Theory and Fuzzy Logic*

Lotfi A. Zadeh

### Coffee Break

**Thursday, September 2, 11:25–13:00**

Plenary Session: *Imprecise Probabilities*

(Organizer and Chair: Serafín Moral)

*Assessing Debris Flow Hazard by Credal Nets*

Alessandro Antonucci, Andrea Salvetti and Marco Zaffalon

*A Possibilistic Interpretation of The Expectation of a Fuzzy Random Variable*

Inés Couso, Enrique Miranda and Gert De Cooman

*Learning and Optimal Control of Imprecise Markov Decision Processes by Dynamic Programming Using the Imprecise Dirichlet Model*

Matthias C.M. Troffaes

*Representation of Incomplete Probabilistic Information*

Cédric Baudrit, Didier Dubois and Hélène Fargier

*Range of Entropy for Credal Sets*

Joaquín Abellán and Serafín Moral

### Lunch

## Thursday, September 2, 14:30–16:00

### Parallel Session PS 2.1

*A Proposal of Fuzzy Correspondence Analysis Based on Flexible Data Mining Techniques*

Julio Calero, Gabriel Delgado, José María Serrano, Daniel Sánchez  
and María Amparo Vila

*On the Notion of Statistical Fuzzy Entropy*

Jan Van den Berg and Uzay Kaymak

*Informational Paradigm and Entropy-Based Dynamic Clustering in a Complete Fuzzy Framework*

Renato Coppi, Pierpaolo D'Urso and Paolo Giordani

*Uncertainty Measures and Hierarchical Classification*

Carlo Bertoluzza and Sergio De Simoni

*Introduction to ANOVA with Fuzzy Random Variables*

Manuel Montenegro, Gil González-Rodríguez, María Ángeles Gi, Ana Colubi  
and María Rosa Casals

## Thursday, September 2, 14:30–16:00

### Parallel Session PS 2.2

*Towards the Optimal Feature Selection in High-Dimensional Bayesian Network Classifiers*

Tatjana Pavlenko, Mikael Hall, Dietrich Von Rosen  
and Zhanna Andruschenko

*Addition Nodes in Influence Diagrams with Fuzzy-valued Utilities and Variables*

Miguel López-Díaz and Luis José Rodríguez-Muñiz

*Neural Networks and Statistics: A Review of the Literature*

María del Mar Rodríguez del Águila, Ignacio Requena, José Luis Bernier, Eduardo Ros  
and Sonia Mota

*Bayesian Networks to Improve the Balanced Scorecard*

José Luis Flórez

*Multivariate Imputation of Qualitative Missing Data using Bayesian Networks*

Vanessa Romero and Antonio Salmerón

## Thursday, September 2, 14:30–16:00

### Parallel Session PS 2.3

*Application of Regime-Switching Models of Time Series with Cubic Spline Transition Function*

Tomas Bognár, Jozef Komorník and Magda Komorníková

*Enhanced QTL linkage Analysis with DNA Pooling by Means of Monte Carlo EM*

Carlos Carleos, Norberto Corral, María Asunción Lubiano  
and Jesús Ángel Baro

*Characterization of Human Electrocardiogram by Analyses of Phase Attributes*

G.V.S. Chiranjivi and D. NagChoudhuri

*A Posteriori Inference of Model Parameters in a Geophysical Inverse Problem Using Genetic Algorithms*

J. Paulino Fernández-Álvarez, J. Luis Fernández-Martínez  
and C. Omar Menéndez-Pérez

*Fuzzy Rule Generation in Hydrological Modelling*

Jonathan Lawry, Dawei Han and Ian D. Cluckie

**Thursday, September 2, 16:00–17:45**

Plenary Session: *Statistical Information Theory I*

(Organizer and Chair: Leandro Pardo)

*Phi-Residual Based on Minimum Phi-divergence estimator in the Loglinear Model of Symmetry*

Arjun K. Gupta, Truc T. Nguyen and Leandro Pardo

*Bahadur Efficiency of the Phi-Divergence Test Statistic*

Leandro Pardo

*Digitalization of Observations Permits Efficient Estimation in Continuous Models*

Domingo Morales, Leandro Pardo and Igor Vajda

*K $\phi$  Divergence Statistics in Multinomial Populations*

Teresa Pérez and Julio A. Pardo

*On the Selection of the Best Rukhin's Statistic for the Uniform Exact Distribution Function*

Yolanda Marhuenda, Domingo Morales, Julio A. Pardo  
and María Carmen Pardo

*On Testing Hypotheses with Divergence statistics*

Isabel Molina and Domingo Morales

### **Coffee Break**

**Thursday, September 2, 18:00–19:30**

Plenary Session Oriented to *Transfer of Knowledge/ Technology Based on Society's Demands: Applications of 'soft' probabilistic and statistical methods*

(Organizer and Chair: CAJASTUR,  
Keynote speakers: Piero P. Bonissone, Enrique H. Ruspini)

## Friday, September 3, 2004

### Friday, September 3, 9:00–10:00

Plenary Lecture: *Random Sets and Image Analysis.*  
*How to average a cat and a dog?*

Ilya S. Molchanov

### Friday, September 3, 10:00–11:25

Plenary Session: *Statistical Information Theory II*  
(Organizer: Leandro Pardo, Chair: Domingo Morales)

*Testing a Hierarchical Sequence of Linear Logistic Models*

Julio A. Pardo and María Carmen Pardo

*Inference for Three-Dimensional Contingency Tables Based on  $\phi_1$ -Divergences*

Julio A. Pardo

*Information Theory and Complexity in Probability and Statistics*

Flemming Topsøe

*Measures of Multivariate Association and Dependence*

Apostolos Batsidis and Konstantin Zografos

*Phi-divergence Test Statistics for Trends in Binary Responses*

María Luisa Menéndez

### Coffee Break

## **Friday, September 3, 11:40–13:00**

### **Parallel Session PS 3.1**

*k-Intolerant Bi-Capacities and Veto Criteria*

Michel Grabisch, Christophe Labreuche, Jean-Luc Marichal  
and Pedro Miranda

*Decision Rules for Bayesian Hierarchical Classifier with Fuzzy Factor*

Robert Burduk

*Fuzzy Extended Lexicographic Goal Programming*

Mar Arenas, Amelia Bilbao, Blanca Pérez-Gladish  
and María Victoria Rodríguez-Uría

*Fuzzy Dynamic Programming with Stochastic Systems under Various Aggregation Operators:*

*Solvability and Perceived Meaning*

Janusz Kacprzyk

## **Friday, September 3, 11:40–13:00**

### **Parallel Session PS 3.2**

*Representation of Probabilities on IFS Events*

Beloslav Riecan

*On Limit Theorems for  $t$ -Normed Sums of Fuzzy Random Variables*

Pedro Terán

*Few Remarks Concerning a Concept to Define Normally Distributed Random Fuzzy Sets*

Volker Krätschmer and Joachim Oberlinger

*Possibilistic Time Processes and Soft Decoding*

Andrea Sgarro

## **Friday, September 3, 11:40–13:00**

### **Parallel Session PS 3.3**

*Designing Confidence Intervals under Vague Information*

Edyta Mrówka

*A Comparison of Variable Selection Methods with the Main Focus on Orthogonalization*

Werner Groißböck, Edwin Lughofer and Erich Peter Klement

*Detection of Influential Case in Fuzzy Regression*

Alper Basaran and Suleyman Gunay

*Distribution-Free Tests for Vague Data*

Przemysław Grzegorzewski

**Lunch**

## **Friday, September 3, 14:30–15:45**

### **Parallel Session PS 3.4**

*Induction of Fuzzy Prototypes with Feature Selection*

Inés González Rodríguez and Jonathan Lawry

*Inconsistency Analysis for Statistical Tests of Hypotheses*

Julio Michael Stern

*An Alternative Criterion to Likelihood for Parameter Estimation Accounting for a Prior Information on a Nuisance Parameter*

Adel Mohammadpour and Ali Mohammad-Djafari

*Interval Fuzzy Bayesian Inference*

Juan Miguel León-Rojas and Montaña Morales

## **Friday, September 3, 14:30–15:45**

### **Parallel Session PS 3.5**

*Characterization of the Scalar  $(s, t)$ -Additive Measures: Probabilities and Cardinalities*

Jaume Casasnovas

*Fuzzy Integrals on Partially-Known Measures Variables*

M. Jorge Bolaños and Fernando Reche

*A Note on Chaos in Fuzzy Systems*

Heriberto Román-Flores and Yurilev Chalco-Cano

*On Pareto Process*

K. Jayakumar

## **Friday, September 3, 14:30–15:45**

### **Parallel Session PS 3.6**

*Generalized Stochastic Transitivity for Probabilistic Relations*

Hans De Meyer and Bernard De Baets

*The Concept of Non-Symmetric Independence on MV-Algebras*

Martin Kalina and Olga Nánásiová

*Some Aspects of Conditioning in a Coherent Setting*

Giulianella Coletti and Romano Scozzafava

*The Role of Zero Probabilities in Dealing with Zero Frequency Problems*

Romano Scozzafava and Barbara Vantaggi

## **Friday, September 3, 15:45–17:15**

Plenary Session: *Probability and Statistics with Imprecisely-Valued Random Elements*  
(Organizer and Chair: Shoumei Li)

*On Statistical Inference with Random Sets*

    Ding Feng and Hung T. Nguyen

*Interval-Valued and Fuzzy-Valued Random Variables: from Computing Sample Variances to Computing Sample Covariances*

    Jan B. Beck, Vladik Kreinovich and Berlin Wu

*Estimability and Admissibility in Sample Survey Models*

    Elbert a. Walker

*Riesz Space and Fuzzy Upcrossing Theorems*

    Wen-Chi Kuo, Coenraad C.A. Labuschagne and Bruce A. Watson

*On Laws of Large Numbers for Exchangeable Random Sets*

    Hiroshi Inoue

*Strong and Weak Laws of Large Numbers for Weighted Sums of Fuzzy Set-Valued Random Variables*

    Li Guan and Shoumei Li

## **Coffee Break**

## **Friday, September 3, 17:30–18:30**

Plenary Lecture: *Capacity Functionals of Random Sets*  
    Hung T. Nguyen

## **Friday, September 3, 18:30–19:30**

Plenary Session Oriented to *Practical Implications of 'Soft Computing' and Statistics in Consulting*

(Organizer and Chair: NEO-METRICS,  
    Keynote speaker: Rudolf Kruse)

## Saturday, September 4, 2004

### Saturday, September 4, 9:00–10:00

Plenary Lecture: *On Limit Theorems for Random Fuzzy Sets  
Including Large Deviation Principles*

Yukio Ogura

### Saturday, September 4, 10:00–11:25

Plenary Session: *Statistics with Imprecise Data*  
(Organizer and Chair: Wolfgang Näther)

*Fuzzy Information and Bayesian Statistics*  
Dietmar Hareter and Reinhard Viertl

*Fuzzy Probability Distributions*  
Wolfgang Trutschnig and Dietmar Hareter

*Least Squares Estimation in Linear Regression Models with Vague Concepts*  
Volker Krätschmer

*Testing One-Sided Hypotheses for the Expectation of Fuzzy Random Variables*  
Andreas Wünsche

*A Random Set View of Fuzzy Random Variables*  
Wolfgang Näther

**Coffee Break**

## **Saturday, September 4, 11:40–13:00**

### **Parallel Session PS 4.1**

*The Zonoid Hull of a Multivariate Probability Distribution and its Trimmed Regions*

Ignacio Cascos-Fernández and Miguel López-Díaz

*Bootstrap Approach to Test the Linear Independence between Interval-Valued Random Sets*

Manuel Montenegro, Gil González-Rodríguez, Ana Colubi  
and María Ángeles Gil

*Identification of the Structure of Linear and Non-Linear Time Series Models, Using  
Nonparametric Estimation Via Local Kernel Functions*

Rosane M. Kirchner, Reinaldo C. Souza and Flávio A. Ziegelman

*Measures of Association for Fuzzy Ordered Categorical Data*

Olgierd Hryniewicz

## **Saturday, September 4, 11:40–13:00**

### **Parallel Session PS 4.2**

*The Double Quadratic Uncertainty Measures and their Economic Applications*

Mercedes Alvargonzález-Rodríguez, Ana Jesús López-Menéndez  
and Rigoberto Pérez-Suárez

*Robust Change Detection Method Using Akaike Information Criterion for Signal Segmentation*

Theodor D. Popescu

*Classification Techniques, Sample Size and Predictive Performance: A Comparative Analysis  
Based on a Spanish Case*

Manuel Landajo

*Medium-Term Electricity Generation with Fuzzy Availability*

F. Alberto Campos and José Villar

## **Saturday, September 4, 11:40–13:00**

### **Parallel Session PS 4.3**

*Hadamard and Jensen Inequalities for  $s$ -Convex Fuzzy Processes*

Rafaela Osuna-Gómez, María Dolores Jiménez-Gamero,  
Yurilev Chalco-Cano and Marko A. Rojas-Medar

*Continuity for  $s$ -Convex Fuzzy Processes*

Juliana Cervelati, María Dolores Jiménez-Gamero, Filidor Vilca-Labra  
and Marko A. Rojas-Medar

*Fuzzy Solution for Approximating Constrained Optimal PWM using Localized Quantum  
Evolutionary Algorithm*

Shiyan Hu and Han Huang

*About Weakly Locally Compact Spaces*

Tomas K. Breuckmann, Soraya R. Torres Kudri and Halis Aygün

## **Lunch**

## **Saturday, September 4, 14:30–16:15**

### **Plenary Session: *Copulas***

(Organizer and Chair: Radko Mesiar)

*From the Comparison of Ordered Lists to the Construction of Copulas*

Bernard De Baets and Hans De Meyer

*Compatibility of Three Bivariate Quasi-Copulas: Applications to Copulas*

José Antonio Rodríguez-Lallena and Manuel Úbeda-Flores

*Transformations of Copulas and Quasi-Copulas*

Erich Peter Klement, Radko Mesiar and Endre Pap

*Compositions of Copulas and Quasi-Copulas*

Fabrizio Durante and Carlo Sempi

*Countably Generated Idempotent Copulas*

Angela Albanese and Carlo Sempi

*1-Lipschitz Aggregation Operators, Quasi-Copulas and Copulas with Given Diagonals*

Erich Peter Klement and Angela Kolesarova

## **Saturday, September 4, 16:15–17:15**

### **Plenary Lecture: *Fuzzy Probability and Some Applications***

Dan A. Ralescu

### **Coffee Break**

## **Saturday, September 4, 17:30–18:00 Closing Ceremony**

## **Saturday, September 4, 21:00 Conference Dinner**