

57

Prof. Boudalova PhD

Tenth International Conference  
on Fuzzy Set Theory and Applications  
FSTA 2010



# ABSTRACTS

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February 1 – 5, 2010  
Liptovský Ján, the Slovak Republic

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## EDITORS

Erich Peter KLEMENT

Radko MESIAR

Peter STRUK

Eva DROBNÁ

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THE TENTH INTERNATIONAL CONFERENCE ON FUZZY SET THEORY AND APPLICATIONS  
WILL TAKE PLACE UNDER THE AUSPICES OF THE FOLLOWING INSTITUTIONS:

FACULTY OF CIVIL ENGINEERING  
OF THE SLOVAK UNIVERSITY OF TECHNOLOGY IN BRATISLAVA

ARMED FORCES ACADEMY  
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MATHEMATICAL INSTITUTE  
OF THE SLOVAK ACADEMY OF SCIENCES IN BRATISLAVA



## Preface

Since their inception in 1992, the FSTA conferences have emphasized the development of mathematical aspects of fuzzy sets and related fields, including application thereof, by bringing together researchers from fuzzy logic, neural networks, genetic algorithms, quantum structures, and measure theory, to name a just few.

This conference is co-sponsored by the Faculty of Civil Engineering of the Slovak University of Technology in Bratislava, the Armed Forces Academy of General Milan Rastislav Štefánik in Liptovský Mikuláš, the Mathematical Institute of the Slovak Academy of Sciences in Bratislava, and by the European Society for Fuzzy Logic and Technology EUSFLAT.

Recall that the first announcement of the foundation of EUSFLAT was made at the fourth FSTA conference in 1998, and since then each FSTA meeting has been held under the auspices of EUSFLAT, with an active participation of the EUSFLAT Working groups on Aggregation Operators. This time, special attention is paid to Special Session on Mathematical Fuzzy Logic organized by L. Běhounek, P. Cintula and C. Noguera, and to Special Session on Fuzzy Modelling and Applications organized by I. Perfilieva and M. Šteplníčka.

These proceedings now collect the abstracts of the talks to be presented at the 10-th edition of FSTA, taking place in Liptovský Ján, February 1–5, 2010. The volume is divided into two parts: the first one contains the abstracts of the plenary talks (in alphabetic order of the first authors), while Part II consists (again in alphabetic order) of the abstracts of the contributed talks.

The editors would like to thank to all contributors, all referees as well as to the members of the Program and the Organizing Committees, which together with the support of the sponsoring institutions, made this conference possible.

Bratislava, January 2010

Erich Peter Klement  
Radko Mesiar  
Peter Struk  
Eva Drobná



# Contents

## PLENARY TALKS

DE BAETS Bernard: <i>A tour of cycle-transitivity</i> .....	8
DURANTE Fabrizio: <i>Copulas and extreme events</i> .....	9
KHURSHID Ahmad: <i>The end of rationality?</i> .....	10
NOGUERA Carles: <i>From fuzzy sets to mathematical fuzzy logic</i> .....	12
NOVÁK Vilém: <i>On higher-order fuzzy logics</i> .....	13
PAP Endre: <i>20 years of pseudo-analysis and its applications</i> .....	14
ZHANG Qiang, MESIAR Radko, LI Jun, STRUK Peter: <i>Generalized integral</i> .....	15

## CONTRIBUTED TALKS

AL-ADILEE Ahmed, NÁNÁSIOVÁ Oľga: <i>Relationships between an s-map and QL-copula</i> ..	16
ALIMORADI Mohammad R., KORDI Ali, JABARI KHANBEHBIN Tahereh, AHMADI Ali: <i>Soft rings</i> .....	17
ASMUSS Svetlana: <i>On approximation under L-fuzzy information</i> .....	18
AZADEH Ali, GHOREISHI F., SABERI Morteza, EBRAHIMPOUR Vahid, ASADZADEH Mohammad: <i>A fuzzy simulation algorithm for estimating availability functions in time-depen- dent complex systems</i> .....	19
AZADEH Ali, SABERI Morteza, R. MOHAMMAD EBRAHIM, ASADZADEH Mohammad: <i>Parameter optimization of tandem queue systems with finite intermediate buffers via fuzzy si- mulation</i> .....	21
AZADEH Ali, SINAEI Leila, MIRTALAEI Monireh, SABERI Morteza, ASHJARI Behzad: <i>Methodology of fuzzy usability in expert system for improvement of strategic planning process</i> ..	23
BACIGÁL Tomáš: <i>Stressig dependence function in Archimax copulas with basic generators</i> ..	25
BACZYŃSKI Michał, LUKASIK Radosław: <i>The mutual independence of the properties in the characterization of R-implications generated from left-continuous t-norms</i> .....	26
BACZYŃSKI Michał, LUKASIK Radosław: <i>On the different laws of contraposition for fuzzy implications</i> .....	28
BĚHOUNEK Libor, BODENHOFER Ulrich, CINTULA Petr, SAMINGER-PLATZ Susanne, SARKOCI Peter: <i>Graded properties of t-norms</i> .....	30
BĚHOUNEK Libor, BODENHOFER Ulrich, CINTULA Petr, SAMINGER-PLATZ Susanne, SARKOCI Peter: <i>Graded properties of dominance</i> .....	31
BELIAKOV Gleb, SIMON James, MORDELOVÁ Juliana, RŮCKSCHLOSSOVÁ Tatiana, YAGER Ronald R.: <i>Generalized Bonferroni mean operators in multi-criteria aggregation</i> ..	32
BIBA Vladislav, HLINĚNÁ Dana, KALINA Martin, KRÁL' Pavol: <i>Generated fuzzy implica- tions and I-fuzzy equivalences</i> .....	34
BOCCUTO Antonio: <i>Limit theorems in (I)-groups with respect to (D)-convergence</i> .....	36
BOHDALOVÁ Mária, GREGUŠ Michal: <i>Fuzzy fractals and finance time series</i> .....	38
BOHDALOVÁ Mária, KALINA Martin, NÁNÁSIOVÁ Oľga: <i>Comparision of quantum and classical models of time series</i> .....	39
BUDIMIROVIĆ Branka, BUDIMIROVIĆ Vjekoslav, TEPAVČEVIĆ Andreja: <i>Fuzzy com- pletely regular semigroups and fuzzy <math>\epsilon</math>- subgroups</i> .....	40



## Fuzzy fractals and finance time series

BOHDALOVÁ Mária, GREGUŠ Michal

*Comenius University, Faculty of Management  
Odbojárov 10, 820 05 Bratislava  
Slovak Republic*

*E-mail: maria.bohdalova@fm.uniba.sk; michal.gregus@fm.uniba.sk*

We describe fuzzy-fractal approach for financial time series analysis in this paper. We use the concept of the fractal dimension to measure the complexity of time series of observed financial data. Fractal dimension describes self-similarity (structural complexity) of various phenomena and fractal structure accepts global determinism and local randomness of the behavior of the financial time series. We will discuss the role of fuzzy sets as a vehicle for constructing fractal dimensions (see [4]). Experimental studies will be included as illustration of this approach.

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# Comparison of quantum and classical models of time series

BOHDALOVÁ Mária<sup>1</sup>, KALINA Martin<sup>2</sup> and NÁNÁSIOVÁ Oľga<sup>2</sup>

<sup>1</sup> Faculty of Management, Comenius University  
Odbojárov 10, 820 05 Bratislava  
Slovak Republic

E-mail: maria.bohdalova@fm.uniba.sk

<sup>2</sup> Department of Mathematics, Faculty of Civil Engineering  
Slovak University of Technology  
Radlinského 11, 81368 Bratislava  
Slovak Republic

E-mail: martin.kalina@stuba.sk; olga.nanasiova@stuba.sk

We will consider quantum models of time series in that sense that covariance is non-symmetric. Such models are causal. We will compare these non-symmetric models with the classical one assuming symmetric covariance matrix. Our theoretical considerations will be applied to Markov chains.

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BOHDALOVÁ Mária<sup>1</sup>, KALINA Martin<sup>2</sup> and NÁNÁSIOVÁ Oľga<sup>2</sup>

<sup>1</sup> Faculty of Management, Comenius University  
Odbojárov 10, 820 05 Bratislava  
Slovak Republic  
E-mail: maria.bohdalova@fm.uniba.sk

<sup>2</sup> Department of Mathematics, Faculty of Civil Engineering  
Slovak University of Technology  
Radlinského 11, 81368 Bratislava  
Slovak Republic  
E-mail: martin.kalina@stuba.sk; olga.nanasiova@stuba.sk

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