RNDr. Bohdalová PhD

Tenth International Conference

on Fuzzy Set Theory and Applications

FSTA 2010

ABSTRACTS

February 1 – 5, 2010

Liptovský Ján, the Slovak Republic

EDITORS

Erich Peter KLEMENT Radko MESIAR

Peter STRUK Eva DROBNÁ

Organizers

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
of General Milan Rastislav Štefánik in Liptovský Mikuláš

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. Štepnička.

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

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PLENARY TALKS

CONTRIBUTED TALKS

KIS 02/10

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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Comparision of quantum and classical models of time series

BOHDALOVÁ Mária[1], KALINA Martin[2] and NÁNÁSIOVÁ Ol'ga[2]

[1] *Faculty of Management, Comenius University*
Odbojárov 10, 820 05 Bratislava
Slovak Republic
E-mail: maria.bohdalova@fm.uniba.sk

[2] *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.

References

[1] M. Bohdalová, M. Kalina, O. Nánásiová: *Application of quantum probability*, Foundations of Probability and Physics **No 5**, New York: American Institute of Physics (2009) 114–118.

[2] G. Dohnal: *Markov Property in Quantum Logic. A reflection*, Information Sciences **179** (2009) 485–491.

[3] A.N. Kolmogoroff: *Grundbegriffe der Wahrscheikchkeitsrechnung*, Springer, Berlin (1933).

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[5] O. Nánásiová, A. Khrennikov: *Representation theorem for observables on a quantum system*, Int. J. Theoret. Phys. **45** (2006) 481–494.

[6] O. Nánásiová, S. Pulmannová: *S-maps and tracial states*, Information Sciences **179** 515–520.

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[1] *Faculty of Management, Comenius University*
Odbojárov 10, 820 05 Bratislava
Slovak Republic
E-mail: maria.bohdalova@fm.uniba.sk

[2] *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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