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Nostradamus: Modern Methods of Prediction, Modeling and Analysis of Nonlinear Systems

Springer

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Preface

This proceeding book of Nostradamus conference (http://nostradamus-conference.org) contains accepted papers presented at this event in 2012. Nostradamus conference was held in the one of the biggest and historic city of Ostrava (the Czech Republic, http://www.ostrava.cz/en), in September 2012.

Conference topics are focused on classical as well as modern methods for prediction of dynamical systems with applications in science, engineering and economy. Topics are (but not limited to): *prediction by classical and novel methods, predictive control, deterministic chaos and its control, complex systems, modelling and prediction of its dynamics* and much more.

Prediction of the behaviour of the dynamical systems and modelling of its structure is vitally important problem in engineering, economy and science today. Examples of such systems can be seen in the world around us and of course in almost every science discipline, including such "exotic" domains like the earth's atmosphere, turbulent fluids, economies (exchange rate and stock markets), population growth, physics (control of plasma), chemistry and complex networks .

The main aim of the conference is to create periodical possibility for students, academics and researchers to exchange their ideas and novel methods. This conference will establish a forum for the presentation and discussion of recent trends in the area of applications of various predictive methods for researchers, students and academics.

The conference Nostradamus was officially established in 1998 and has been repeated successfully each year for 5 years. Due to administrative and technical conditions it has been cancelled since now. By this year 2012 we are opening this conference permanently with support of wide spectra of publishers (Springer, Computers & Mathematics with Applications, Journal of Unconventional Computing, International Journal of Energy Optimization and Engineering and Springer series Emergence Complexity and Computation), societies and organizations, one of the biggest university in the Czech Republic and with financial support of EU projects. Conference is supposed to be repeated every year to share knowledge and create new useful relations between researchers.

The selection of papers was extremely rigorous and we did it in order to maintain the high quality of the conference. We would like to thank the members of the Program Committees and reviewers for their hard work - each contribution has got 6 reviews. We believe that Nostradamus conference creates a high standard conference in the domain of prediction and modelling of complex systems.

Nostradamus 2012 enjoyed outstanding keynote speeches by distinguished guest speakers: **Otto E. Rössler** and **Ali Sanayei** (Germany), **Hendrik Richter** (Germany), **Mohammed Chadli** (France), **Oldřich Zmeškal** (Czech Republic) and **Juan Carlos Burguillo-Rial** (Spain). Also a few tutorials were done by Ivan Zelinka (Czech Republic), Roman Šenkeřík (Czech Republic) and Petr Dostal (Czech Republic).

Historically the first Nostradamus conference 1998

For this special edition, as a follow-up of the conference, we anticipate further publication of selected papers in a special issue of the prestigious journal Computers & Mathematics with Applications, special book in Studies in Computational Intelligence series and more.

Particular thanks go as well to the Workshop main Sponsors, IT4Innovations, VŠB-Technical University of Ostrava, MIR labs (USA), Centre for Chaos and Complex Networks (Hong Kong), Journal of Unconventional Computing (UK). Special thanks belong to Ministry of Education of the Czech Republic. This conference was supported by the Development of human resources in research and development of latest soft computing methods and their application in practice project, reg. no. CZ.1.07/2.3.00/20.0072 funded by Operational Programme Education for Competitiveness, co-financed by ESF and state budget of the Czech Republic.

We would like to thank all the contributing authors, as well as the members of the Program Committees and the Local Organizing Committee for their hard and highly valuable work. Their work has helped to contribute to the success of the Nostradamus conference.

The Editors

Ivan Zelinka
Otto E. Rössler
Václav Snášel
Ajith Abraham
Emilio S. Corchado

This conference was supported by the Development of human resources in research and development of latest soft computing methods and their application in practice project, reg. no. CZ.1.07/2.3.00/20.0072 funded by Operational Programme Education for Competitiveness, co-financed by ESF and state budget of the Czech Republic.

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