

Lecture Notes of the Institute for Computer Sciences, Social Informatics and Telecommunications Engineering

4

Editorial Board

Ozgur Akan

Middle East Technical University, Ankara, Turkey

Paolo Bellavista

University of Bologna, Italy

Jiannong Cao

Hong Kong Polytechnic University, Hong Kong

Falko Dressler

University of Erlangen, Germany

Domenico Ferrari

Università Cattolica Piacenza, Italy

Mario Gerla

UCLA, USA

Hisashi Kobayashi

Princeton University, USA

Sergio Palazzo

University of Catania, Italy

Sartaj Sahni

University of Florida, USA

Xuemin (Sherman) Shen

University of Waterloo, Canada

Mircea Stan

University of Virginia, USA

Jia Xiaohua

City University of Hong Kong, Hong Kong

Albert Zomaya

University of Sydney, Australia

Geoffrey Coulson

Lancaster University, UK

Jie Zhou (Ed.)

Complex Sciences

First International Conference, Complex 2009
Shanghai, China, February 23-25, 2009
Revised Papers, Part 1



Springer

Volume Editor

Jie Zhou
Nanyang Technology University
Network Technology Research Centre
Research Techno Plaza, Block 50 Nanyang Drive
Singapore 637553

E-mail: zjie@ntu.edu.sg

Library of Congress Control Number: Applied for

CR Subject Classification (1998): J.3, J.2, J.6, K.4, J.5

ISSN	1867-8211
ISBN-10	3-642-02465-3 Springer Berlin Heidelberg New York
ISBN-13	978-3-642-02465-8 Springer Berlin Heidelberg New York

This work is subject to copyright. All rights are reserved, whether the whole or part of the material is concerned, specifically the rights of translation, reprinting, re-use of illustrations, recitation, broadcasting, reproduction on microfilms or in any other way, and storage in data banks. Duplication of this publication or parts thereof is permitted only under the provisions of the German Copyright Law of September 9, 1965, in its current version, and permission for use must always be obtained from Springer. Violations are liable to prosecution under the German Copyright Law.

springer.com

© ICST Institute for Computer Science, Social Informatics and Telecommunications Engineering 2009
Printed in Germany

Typesetting: Camera-ready by author, data conversion by Scientific Publishing Services, Chennai, India
Printed on acid-free paper SPIN: 12649990 06/3180 5 4 3 2 1 0

Preface

I was invited to join the Organizing Committee of the First International Conference on Complex Sciences: Theory and Applications (Complex 2009) as its ninth member. At that moment, eight distinguished colleagues, General Co-chairs Eugene Stanley and Gaoxi Xiao, Technical Co-chairs János Kertész and Bing-Hong Wang, Local Co-chairs Hengshan Wang and Hong-An Che, Publicity Team Shi Xiao and Yubo Wang, had spent hundreds of hours pushing the conference half way to its birth. Ever since then, I have been amazed to see hundreds of papers flooding in, reviewed and commented on by the TPC members. Finally, more than 200 contributions were selected for the proceedings currently in your hands. They include about 200 papers from the main conference (selected from more than 320 submissions) and about 33 papers from the five collated workshops:

- Complexity Theory of Art and Music (COART)
- Causality in Complex Systems (ComplexCCS)
- Complex Engineering Networks (ComplexEN)
- Modeling and Analysis of Human Dynamics (MANDYN)
- Social Physics and its Applications (SPA)

Complex sciences are expanding their colonies at such a dazzling speed that it becomes literally impossible for any conference to cover all the frontiers. We decided to mainly cover the following seven topics, which is already a major challenge for a conference:

- Structure and Dynamics of Complex Networks
- Complex Biological Systems
- Complex Economic Systems
- Complex Social Systems
- Complex Engineering Systems
- Complex Systems Methods
- Other Complex Systems

It is our hope that the conference can serve as a bridge for accelerating communication and cooperation between the participants. It is certainly also our hope that more researchers will respond to our invitation in future.

On behalf of all the Organizing Committee members, we thank all the TPC members and reviewers who have carefully helped review and select the contributions. We thank all the local helpers for their endless patience and priceless help. The efforts of the ICST and Springer staff are also gratefully acknowledged. Above all, we thank all the authors for submitting their research results to us. Without their support, there would be no conference.

Last but not least, I would like to take this opportunity to express my personal thanks to all the other Organizing Committee members. Team, it has been amazing and totally enjoyable to work with you.

February 2009

Jie Zhou

Organization

Steering Committee Chair

Imrich Chlamtac Create-Net, Italy

General Co-chairs

Eugene Stanley Boston University, USA
Gaoxi Xiao NTU, Singapore

Technical Co-chairs

Bing-Hong Wang USTC, China
János Kertész BUTE, Hungary

Local Co-chairs

Heng-Shan Wang USST, China
Hong-An Che SASS, China

Sponsorship Co-chairs

Zhicheng Li BUPT, China
Sheng Liang Beihang University, China

Publication Chair

Jie Zhou NTU, Singapore
email: zjie@ntu.edu.sg

Publicity Chair

Shi Xiao NTU, Singapore

Web Chair

Yubo Wang NTU, Singapore

Conference Coordinator

Karen Decker ICST

Technical Program Committee

Mikko Alava	Helsinki University of Technology, Finland
Azucena Alvarez	Universidad de Sevilla, Spain
Tomasz Arodz	AGH University of Science and Technology, Poland
David K. Arrowsmith	University of London, UK
Alan Baker	Swarthmore College, USA
Juan Gonzalo Barajas	Ramirez IPICYT, Mexico
Patrick Beaument	The abaci Partnership LLP, UK
Mark A. Bedau	Reed College, Portland
Mirza Beg	University of Waterloo, Canada
Jean Botev	University of Trier, Germany
Markus Brede	CSIRO Marine and Atmospheric Research, Australia
Fabricio A Breve	Universidade de São Paulo, Brazil
Christine Broenner	The abaci Partnership LLP, UK
Zdzislaw Burda	Jagellonian University, Poland
John Burns	IT Tallgaht
Yiwei Cao	RWTH Aachen University, Germany
Jean Cavailhes	INRA-CESAER, France
Peilong Chen	National Central University, Taiwan
Yin Jie Chen	University College Cork, Ireland
Yi-Jen Chiu	Diwan College, Taiwan
Wai-Ki Ching	The University of Hong Kong, Hong Kong
Yang Cong	The University of Hong Kong, Hong Kong
Vittoria Colizza	ISI Foundation, Italy
Philip Cordes	University of Bremen, Germany
Michel I Cotsaftis	ECE, France
Jon Crowcroft	University of Cambridge, UK
Matthias Dehmer	University of Coimbra, Portugal
Sahin Delipinar	Bogazici University, Turkey
Zhenyu Dong	Dalian University of Technology, China
Stanislaw Drozd	Polish Academy of Science, Poland
Chongwei Du	Shanghai Jiao Tong University, China
Zhisheng Duan	Peking University, China
Bohdan Durnota	DeciSci Co. Ltd., China
Schahram Dustdar	Vienna University of Technology
Frank Emmert-Streib	Queen's University Belfast, UK
rasul Enayatifar	Azad University, Iran
Markus Esch	University of Luxemburg, Germany
Maryam Esmaeili	Informatics Faculty of University of Lugano, Switzerland
Jin Fan	The Australian National University, Australia
Mohammad Fassihi	Amir-Kabir, Iran
Philip Vos Fellman	Southern New Hampshire University, USA
Xiang Feng	East China University of Science and Technology, China
John Frazer	Queensland University of Technology, Australia

Rosane Riera Freire	Pontificia Universidade Católica do Rio de Janeiro, Brazil
Mauro Gallegati	Polytechnic University of Marche, Italy
Caixia Gao	Inner Mongolia University, China
Jianbo Gao	University of Florida, USA
Lei Gao	DeciSci Co. Ltd., China
Diego Garlaschelli	University of Siena, Italy
Domenico Delli Gatti	Università Cattolica, Italy
Virendra Gomase	Padmashree Dr. D.Y. Patil University (T.K.I.E.T., Warananagar), India
Antonio Gómez-Iglesias	CIEMAT, Spain
Yan Gu	University of Melbourne, Australia
Zhi-Hong Guan	Huazhong University of Science and Technology, China
David Hales	Technical University of Delft, Netherlands
Zhangang Han	Beijing Normal University, China
Da-Ren He	Yangzhou University, China
Jari Saramaki Helsinki	University of Technology, Finland
Jean-Claude Heudin	Pole Universitaire Leonard de Vinci, France
Janusz Holyst	Warsaw University of Technology, Poland
Ping-Nan Hsiao	RCHSS, Academia Sinica, Taiwan
Arthur Huang	University of Minnesota, USA
Chung-Yuan Huang	Chang Gung University, Taiwan
Pan Hui	University of Cambridge, UK
Bin Jiang	University of Gävle, Sweden
LuoLuo Jiang	University of Science and Technology of China, China
Rui Jiang	University of Science and Technology of China, China
Jeff Johnson	The Open University, UK
Shahab Kamali	University of Waterloo, Canada
Beom Jun Kim	Sungkyunkwan University, Korea
Ki-Il Kim	Gyeongsang National University, Korea
Ralf Klamma	RWTH Aachen University, Germany
Ljupco Kocarev	University of California, San Diego, USA
Xiangxing Kong	Central South University, China
Victor Korotkiikh	Central Queensland University, Australia
Ondrej Krejcar	VSB Technical University of Ostrava, Czech Republic
Francis Lau	Hong Kong Polytechnic University, Hong Kong
Anna Lawniczak	University of Guelph, Canada
Jae Woo Lee	Inha University, Korea
Wei-Po Lee	National Sun Yat-sen University, Taiwan
Ho-fung Leung	The Chinese University of Hong Kong, Hong Kong
Yu-jian LI	University of Science and Technology of China, China
Sy-Sang Liaw	National Chung-Hsing University, Taiwan
Jijun Lin	Massachusetts Institute of Technology, USA
Nelly Litvak	University of Twente, Netherlands
Jiming Liu	Hong Kong Baptist University, Hong Kong
Ruey-Tarng Liu	National Chung-Hsing University, Taiwan

Wolfgang Loehr	Max Planck Institute for Mathematics in the Sciences, Germany
Eduardo Lopez	University of Oxford, UK
Jianquan Lu	City University of Hong Kong, Hong Kong
Jinhu Lu	Chinese Academy of Sciences, China
Heinz Luediger	IMST GmbH, Germany
Qiang Luo	National University of Defense Technology, China
Amin R Mazloom	Mt. Sinai School of Medicine, USA
Gianluca Mazzini	University of Ferrara, Italy
Bernhard K Meister	Renmin University, China
Telmo Menezes	University of Coimbra, Portugal
Yu Song Meng	Nanyang Technological University, Singapore
Czeslaw Mesjasz	Cracow University of Economics, Poland
Panayotis Michaelides	National Technical University of Athens, Greece
Kevin Mills	NIST, USA
Juergen E Mimkes	Physics Department, Paderborn University, Germany
Jose Nacher	Future University-Hakodate, Japan
Ingve Simonsen	
Norwegian	University of Science and Technology, Norway
Juan G. Diaz Ochoa	Max-Planck-Institut Dynamik komplexer Technischer Systeme, Germany
Jukka-Pekka Onnela	Harvard University, USA
Spirakis Pavlos	University of Patras, Greece
Matti Peltomaki	Helsinki University of Technology, Finland
Danilo Pescia	ETH Zurich, Switzerland
Manh Cuong Pham	RWTH Aachen University, Germany
Gregory Provan	University College Cork, Ireland
Marcos Quiles	University of São Paulo, Brazil
Jose J Ramasco	ISI Foundation, Italy
Chuanjun Ren	National University of Defense Technology, China
Jie Ren	National University of Singapore, Singapore
Karim Mohammed	
Rezaul	University of Wales, UK
Colin L Richardson	Imperial College London, UK
Manuel Beltran del Rio	Instituto de Fisica, UNAM, Mexico
Suzanne Sadedin	Monash University, Australia
Sattar B. Sadkhan	University of Babylon, Iraq
Ingo Scholtes	University of Trier, Germany
Caterina Maria Scoglio	Kansas State University, USA
Parongama Sen	University of Calcutta, India
Yingni She	The Chinese University of Hong Kong, Hong Kong
Jingbo Shen	University of Science and Technology of China, China
Paul Sheridan	Tokyo Institute of Technology, Japan
Chuan Shi	Beijing University of Posts and Telecommunications, China
Theodore Simos	University of Peloponnese, Greece

Yunzhong Song	Henan Polytechnic University, China
Caihong Sun	Renmin University of China, China
Jie Sun	Clarkson University, USA
Hideaki Suzuki	National Institute of Information and Communications Technology (NICT), Japan
Gyorgy Szabo	Research Institute for Technical Physics and Materials Science, Hungary
Tetsuya Takaishi	Hiroshima University of Economics, Japan
Giovanni Tapang	University of the Philippines, Philippines
Stefan Thurner	Medical University of Vienna, Austria
Zoltan Toroczka	University of Notre Dame, USA
Jean-Claude Torrel	Pole Universitaire Leonard de Vinci, France
Ljiljana Trajkovic	Simon Fraser University, Canada
Steve Uhlig	T-Labs / TU Berlin, Germany
Dimitris S Vlachos	University of Peloponnese, Greece
Lei Wang	Dalian University of Technology, China
Pu Wang	University College Cork, UK
Jun Wang	University of Notre Dame, USA
Xu-Ming Wang	Ningxia University, China
Yougui Wang	Beijing Normal University, China
Yubo Wang	Nanyang Technological University, Singapore
Felix Wu	University of California, Davis, USA
Jiang Wu	Huazhong University of Science and Technology
Jun Wu	National University of Defense Technology, China
Xiaoqun Wu	Wuhan University, China
Yong-Hong Wu	Curtin University of Technology, Australia
Demetrios Xenides	University of Peloponnese, Greece
Linying Xiang	Nankai University, China
Shi Xiao	Nanyang Technological University, Singapore
Wenjun Xiao	South China university of technology, China
Xin-Jian Xu	Shanghai University, China
Ye Xu	Shenyang Ligong University, China
Shiwei Yan	Beijing Normal University, China
WEI Yan	Trend Micro, Inc., USA
Han-Xin Yang	University of Science and Technology of China, China
Jianxiong Ye	Dalian University of Technology, China
Eiko Yoneki	Univeristy of Cambridge, UK
Liang Zhao	Universidade de São Paulo, Brazi
Guannan Zhao	University of Miami, USA
Zhenyuan Zhao	University of Miami, USA
Guoqiang zhang	Chinese Academy of Sciences, China
Haifeng Zhang	University of Science and Technology of China, China
Ning Zhang	University of Shanghai for Science and Technology, China
Xun Zhang	National University of Singapore, Singapore
Bin Zhen	Tongji University, China

Changsong Zhou	Hong Kong Baptist University, Hong Kong
Jie Zhou	Nanyang Technological University, Singapore
Jin Zhou	Shanghai University, China
Tao Zhou	University of Science and Technology of China, China
Zicong Zhou	Tamkang University, Taiwan

Table of Contents – Part I

Return Intervals Approach to Financial Fluctuations	3
<i>Fengzhong Wang, Kazuko Yamasaki, Shlomo Havlin, and H. Eugene Stanley</i>	
Organizational Adaptative Behavior: The Complex Perspective of Individuals-Tasks Interaction	28
<i>Jiang Wu, Duoyong Sun, Bin Hu, and Yu Zhang</i>	
Optimization Using a New Bio-inspired Approach	39
<i>Xiang Feng, Francis C.M. Lau, and Daqi Gao</i>	
Optimality Conditions of a Three-Dimension Non-smooth Thermodynamic System of Sea Ice	52
<i>Wei Lv, Hong Bao, and Enmin Feng</i>	
Optimal Service Capacities in a Competitive Multiple-Server Queueing Environment	66
<i>Wai-Ki Ching, Sin-Man Choi, and Min Huang</i>	
One Kind of Network Complexity Pyramid with Universality and Diversity	78
<i>Jin-Qing Fang and Yong Li</i>	
On Traveling Diameter of an Instance of Complex Networks – Internet	90
<i>Ye Xu, Zhuo Wang and Wen-bo Zhang</i>	
On the Approximation Solution of a Cellular Automaton Traffic Flow Model and Its Relationship with Synchronized Flow	100
<i>R. Jiang, Y.M. Yuan, and K. Nishinari</i>	
On Scale-Free Prior Distributions and Their Applicability in Large-Scale Network Inference with Gaussian Graphical Models	110
<i>Paul Sheridan, Takeshi Kamimura, and Hidetoshi Shimodaira</i>	
On General Laws of Complex Networks	118
<i>Wenjun Xiao, Limin Peng, and Behrooz Parhami</i>	
On Distributed Multi-Point Concurrent Test System and Its Implementation	125
<i>Hao Luo and Huaxin Zeng</i>	
Organizational Structure of the Transcriptional Regulatory Network of Yeast: Periodic Genes	140
<i>Frank Emmert-Streib and Matthias Dehmer</i>	

Packet-Level Traffic Allocation for Real-Time Streaming over Multipath Networks	149
<i>Yanfeng Zhang, Cuirong Wang, and Yuan Gao</i>	
Particle Competition in Complex Networks for Semi-supervised Classification	163
<i>Fabricio Breve, Liang Zhao, and Marcos Quiles</i>	
Retail Location Choice with Complementary Goods: An Agent-Based Model	175
<i>Arthur Huang and David Levinson</i>	
Research on Web2.0 System Design Based on CAS Theory	188
<i>Kai Chen and Hengshan Wang</i>	
Reconstructing Gene Networks from Microarray Time-Series Data via Granger Causality	196
<i>Qiang Luo, Xu Liu, and Dongyun Yi</i>	
Recognition of Important Subgraphs in Collaboration Networks	210
<i>Chun-Hua Fu, Yue-Ping Zhou, Xiu-Lian Xu, Hui Chang, Ai-Xia Feng, Jian-Jun Shi, and Da-Ren He</i>	
Queueing Transition of Directed Polymer in Random Media with a Defect	220
<i>Jae Hwan Lee and Jin Min Kim</i>	
Pollution Modeling and Simulation with Multi-agent and Pretopology	225
<i>Murat Ahat, Sofiane Ben Amor, Marc Bui, Michel Lamure, and Marie-Françoise Courel</i>	
Policy, Design and Management: The <i>in-vivo</i> Laboratory for the Science of Complex System	232
<i>Jeffrey Johnson</i>	
Phase Transition of Active Rotators in Complex Networks	242
<i>Seung-Woo Son, Hawoong Jeong, and Hyunsuk Hong</i>	
Personal Recommendation in User-Object Networks	247
<i>Tao Zhou</i>	
Performance Analysis of Public Transport Systems in Nanjing Based on Network Topology	254
<i>Ping Li, Zhen-Tao Zhu, Jing Zhou, Jin-Yuan Ding, Hong-Wei Wang, and Shan-Sen Wei</i>	
Non-Sufficient Memories That Are Sufficient for Prediction	265
<i>Wolfgang Löhr and Nihat Ay</i>	

New Statistics for Testing Differential Expression of Pathways from Microarray Data	277
<i>Hoicheong Siu, Hua Dong, Li Jin, and Momiao Xiong</i>	
Multiple Phase Transitions in the Culture Dissemination	286
<i>Bing Wang, Yuexing Han, Luonan Chen, and Kazuyuki Aihara</i>	
Joint Channel-Network Coding (JCNC) for Distributed Storage in Wireless Network	291
<i>Ning Wang and Jiaru Lin</i>	
Invariance of the Hybrid System in Microbial Fermentation	302
<i>Caixia Gao and Enmin Feng</i>	
Is Self-organization a Rational Expectation? A Critical Review of Complexity and Emergence	310
<i>Heinz Luediger</i>	
Inter-Profile Similarity (IPS): A Method for Semantic Analysis of Online Social Networks	320
<i>Matt Spear, Xiaoming Lu, Norman S. Matloff, and S. Felix Wu</i>	
Inefficiency in Networks with Multiple Sources and Sinks	334
<i>Hyejin Youn, Michael T. Gastner, and Hawoong Jeong</i>	
Impacts of Local Events on Communities and Diseases	339
<i>Xin-Jian Xu, Li-Jie Zhang, Guo-Hong Yang, and Xun Zhang</i>	
Identifying Social Communities in Complex Communications for Network Efficiency	351
<i>Pan Hui, Eiko Yoneki, Jon Crowcroft, and Shu-Yan Chan</i>	
Hypernetworks of Complex Systems	364
<i>Jeffrey Johnson</i>	
Less Restrictive Synchronization Criteria in Complex Networks with Coupling Delays	376
<i>Yun Shang and Maoyin Chen</i>	
MANIA: A Gene Network Reverse Algorithm for Compounds Mode-of-Action and Genes Interactions Inference	389
<i>Darong Lai, Hongtao Lu, Mario Lauria, Diego di Bernardo, and Christine Nardini</i>	
Measurement and Statistics of Application Business in Complex Internet	400
<i>Lei Wang, Yang Li, Yipeng Li, Shuhang Wu, Shiji Song, and Yong Ren</i>	

Moving Breather Collisions in the Peyrard-Bishop DNA Model	411
<i>A. Alvarez, F.R. Romero, J. Cuevas, and J.F.R. Archilla</i>	
Morphological Similarities between DBM and an Economic Geography Model of City Growth	417
<i>Jean Cavailhès, Pierre Frankhauser, Geoffrey Caruso, Dominique Peesters, Isabelle Thomas, and Gilles Vuidel</i>	
Modular Synchronization in Complex Network with a Gauge Kuramoto Model	429
<i>Chulho Choi, Eulsik Oh, Byungnam Kahng, and Doochul Kim</i>	
Modification Propagation in Complex Networks	435
<i>Mary Luz Mouronte, María Luisa Vargas, Luis Gregorio Moyano, Francisco Javier García Algarra, and Luis Salvador Del Pozo</i>	
Modelling of Population Migration to Reproduce Rank-Size Distribution of Cities in Japan	441
<i>Hiroto Kuninaka and Mitsugu Matsushita</i>	
Modeling and Robustness Analysis of Biochemical Networks of Glycerol Metabolism by <i>Klebsiella Pneumoniae</i>	446
<i>Jianxiong Ye, Enmin Feng, Lei Wang, Zhilong Xiu, and Yaqin Sun</i>	
Modeling and Properties of Nonlinear Stochastic Dynamical System of Continuous Culture	458
<i>Lei Wang, Enmin Feng, Jianxiong Ye, and Zhilong Xiu</i>	
Modeling a Complex Biological Network with Temporal Heterogeneity: Cardiac Myocyte Plasticity as a Case Study	467
<i>Amin R. Mazloom, Kalyan Basu, Subhrangsu S. Mandal, and Sajal K. Das</i>	
Model and Dynamic Behavior of Malware Propagation over Wireless Sensor Networks	487
<i>Yurong Song and Guo-Ping Jiang</i>	
Measuring the Efficiency of Network Designing	503
<i>Guoqiang Zhang and Guoqing Zhang</i>	
Gravity Model for Transportation Network Based on Optimal Expected Traffic	514
<i>Jiang-Hai Qian and Ding-Ding Han</i>	
A Bipartite Graph Based Model of Protein Domain Networks	525
<i>J.C. Nacher, T. Ochiai, M. Hayashida, and T. Akutsu</i>	
The Results on the Stability of Glycolytic Metabolic Networks in Different Cells	536
<i>Qinghua Zhou, Gang Peng, Li Jin, and Momiao Xiong</i>	

The Probability Distribution of Inter-car Spacings	541
<i>Jin Guo Xian and Dong Han</i>	
The Origin of Evolution in Physical Systems	550
<i>Jean-Claude Heudin</i>	
The Nonlinear Mechanism of Phase Transition in Computer Networks	560
<i>Li Yi-Peng, Huang Yi-Hua, Wang Lei, and Ren Yong</i>	
The Evolution of ICT Markets: An Agent-Based Model on Complex Networks	569
<i>Liangjie Zhao, Bangtao Wu, Zhong Chen, and Li Li</i>	
The Effects of Link and Node Capacity on Traffic Dynamics in Weighted Scale-Free Networks	580
<i>Mao-Bin Hu, Rui Jiang, Yong-Hong Wu, and Qing-Song Wu</i>	
The Effect of Lane-Changing Time on the Dynamics of Traffic Flow	589
<i>Xin-Gang Li, Bin Jia, and Rui Jiang</i>	
The Difference between Single-Valued and Multi-Valued Cases in the Compact Representation of CPD in Bayesian Networks	599
<i>Qin Zhang</i>	
The Control Based on Internal Average Kinetic Energy in Complex Environment for Multi-robot System	607
<i>Mao Yang, Yantao Tian, and Xianghua Yin</i>	
The Contrast of Parametric and Nonparametric Volatility Measurement Based on Chinese Stock Market	618
<i>Xinwu Zhang, Yan Wang, and Handong Li</i>	
The System Dynamics Research on the Private Cars' Amount in Beijing	628
<i>Jie Fan and Guang-le Yan</i>	
The Topological Characteristics and Community Structure in Consumer-Service Bipartite Graph	640
<i>Lin Li, Bao-Yan Gu, and Li Chen</i>	
Time Dependent Virus Replication in Cell Cultures	651
<i>Juan G. Díaz Ochoa, Andreas Voigt, Heiko Briesen, and Kai Sundmacher</i>	
You Never Walk Alone: Recommending Academic Events Based on Social Network Analysis	657
<i>Ralf Klamma, Pham Manh Cuong, and Yiwei Cao</i>	

Visualization of Complex Biological Systems: An Immune Response Model Using OpenGL	671
<i>John Burns, Heather J. Ruskin, Dimitri Perrin, and John Walsh</i>	
Using the Weighted Rich-Club Coefficient to Explore Traffic Organization in Mobility Networks	680
<i>José J. Ramasco, Vittoria Colizza, and Pietro Panzarasa</i>	
Tracking the Evolution in Social Network: Methods and Results	693
<i>Shengqi Yang, Bin Wu, and Bai Wang</i>	
Towards Network Complexity	707
<i>Matthias Dehmer and Frank Emmert-Streib</i>	
Towards a Partitioning of the Input Space of Boolean Networks: Variable Selection Using Bagging	715
<i>Frank Emmert-Streib and Matthias Dehmer</i>	
Toward Automatic Discovery of Malware Signature for Anti-Virus Cloud Computing	724
<i>Wei Yan and Erik Wu</i>	
Topological Structure and Interest Spectrum of the Group Interest Network	729
<i>Ning Zhang</i>	
Topological Analysis and Measurements of an Online Chinese Student Social Network	737
<i>Duoyong Sun, Jiang Wu, Shenghua Zheng, Bin Hu, and Kathleen M. Carley</i>	
Time, Incompleteness and Singularity in Quantum Cosmology	749
<i>Philip V. Fellman, Jonathan Vos Post, Christine Carmichael, Alexandru Manus, and Dawna Lee Attig</i>	
The Complex Economic System of Supply Chain Financing	763
<i>Lili Zhang and Guangle Yan</i>	
The Bipartite Network Study of the Library Book Lending System	773
<i>Nan-nan Li and Ning Zhang</i>	
Temperature-Induced Domain Shrinking in Ising Ferromagnets Frustrated by a Long-Range Interaction	783
<i>Alessandro Vindigni, Oliver Portmann, Niculin Saratz, Fabio Cinti, Paolo Politi, and Danilo Pescia</i>	
Slowdown in the Annihilation of Two Species Diffusion-Limited Reaction on Fractal Scale-Free Networks	787
<i>Chang-Keun Yun, Byungnam Kahng, and Doochul Kim</i>	

SIRS Dynamics on Random Networks: Simulations and Analytical Models	792
<i>Ganna Rozhnova and Ana Nunes</i>	
Self-organized Collaboration Network Model Based on Module Emerging	798
<i>Hongyong Yang, Lan Lu, and Qiming Liu</i>	
Self-organized Balanced Resources in Random Networks with Transportation Bandwidths	806
<i>Chi Ho Yeung and K.Y. Michael Wong</i>	
Selection of Imitation Strategies in Populations When to Learn or When to Replicate?	819
<i>Juan G. Díaz Ochoa</i>	
Sediment Transport Dynamics in River Networks: A Model for Higher-Water Seasons	832
<i>Jie Huo, Xu-Ming Wang, Rui Hao, and Jin-Feng Zhang</i>	
Scaling Relations in Absorbing Phase Transitions with a Conserved Field in One Dimension	841
<i>Sang-Gui Lee and Sang Bub Lee</i>	
Scaling Law between Urban Electrical Consumption and Population in China	853
<i>Xiaowu Zhu, Aimin Xiong, Liangsheng Li, Maoxin Liu, and Xiaosong Chen</i>	
Scaling in Modulated Systems	865
<i>Oliver Portmann, Alessandro Vindigni, and Danilo Pescia</i>	
Scaling Behavior of Chinese City Size Distribution	868
<i>Xiaowu Zhu, Aimin Xiong, Liangsheng Li, Maoxin Liu, and Xiaosong Chen</i>	
Social Network as Double-Edged Sword to Exchange: Frictions and the Emerging of Intellectual Intermediary Service	876
<i>Li Li, Bangtao Wu, Zhong Chen, and Liangjie Zhao</i>	
Spam Source Clustering by Constructing Spammer Network with Correlation Measure	889
<i>Jeongkyu Shin and Seunghwan Kim</i>	
Spiral Waves Emergence in a Cyclic Predator-Prey Model	894
<i>Luo-Luo Jiang, Wen-Xu Wang, Xin Huang, and Bing-Hong Wang</i>	
Synchronization Stability of Coupled Near-Identical Oscillator Network	900
<i>Jie Sun, Erik M. Bollt, and Takashi Nishikawa</i>	

Synchronization of Complex Networks with Time-Varying Coupling Delay via Impulsive Control	912
<i>Yang Dai, Yunze Cai, and Xiaoming Xu</i>	
Synchronization in Complex Networks with Different Sort of Communities	924
<i>Ming Zhao, Tao Zhou, Hui-Jie Yang, Gang Yan, and Bing-Hong Wang</i>	
Symmetry Breaking in the Evolution of World Economic Structure	934
<i>Hui Wang and Guangle Yan</i>	
Studies on Interpretive Structural Model for Forest Ecosystem Management Decision-Making	944
<i>Suqing Liu, Xiumei Gao, Qunying Zen, Yuanman Zhou, Yuequn Huang, Weidong Han, Linfeng Li, Jiping Li, and Yingshan Pu</i>	
Structure of Mutualistic Complex Networks	954
<i>Jun Kyung Hwang, Seong Eun Maeng, Moon Yong Cha, and Jae Woo Lee</i>	
Strong Dependence of Infection Profiles on Grouping Dynamics during Epidemiological Spreading	960
<i>Zhenyuan Zhao, Guannan Zhao, Chen Xu, Pak Ming Hui, and Neil F. Johnson</i>	
Statistical Properties of Cell Topology and Geometry in a Tissue-Growth Model	971
<i>Patrik Sahlin, Olivier Hamant, and Henrik Jönsson</i>	
Stability of Non-diagonalizable Networks: Eigenvalue Analysis	980
<i>Linying Xiang, Zengqiang Chen, and Jonathan J.H. Zhu</i>	
Scale-Free Networks with Different Types of Nodes	991
<i>Juan Zhang and Wenfeng Wu</i>	
Global Synchronization of Generalized Complex Networks with Mixed Coupling Delays	1001
<i>Yang Dai, Yunze Cai, and Xiaoming Xu</i>	
Community Division of Heterogeneous Networks	1011
<i>Tsuyoshi Murata</i>	
Autonomous Co-operation and Control in Complex Adaptive Logistic Systems – Contributions and Limitations for the Innovation Capability of International Supply Networks	1023
<i>Michael Hülsmann and Philip Cordes</i>	

Asymptotic Behavior of Ruin Probability in Insurance Risk Model with Large Claims	1033
<i>Tao Jiang</i>	
Approaching the Linguistic Complexity	1044
<i>Stanisław Drożdż, Jarosław Kwapien, and Adam Orczyk</i>	
Application of the Kelly Criterion to Ornstein-Uhlenbeck Processes	1051
<i>Yingdong Lv and Bernhard K. Meister</i>	
Application of SRM to Diverse Populations	1063
<i>Sahin Delipinar and Haluk Bingol</i>	
Antisynchronization of Two Complex Dynamical Networks	1072
<i>Ranjib Banerjee, Ioan Grosu, and Syamal K. Dana</i>	
Analysis and Modeling on the Government's Co-agglomeration in Industrial Clustering	1083
<i>Ying-Chao Zhang, Chao Chen, Xin-Yi Huang, Xiao-Ling Ye, and Yi-Lu Cai</i>	
Analysing Weighted Networks: An Approach via Maximum Flows	1093
<i>Markus Brede and Fabio Boschetti</i>	
An Emergence Principle for Complex Systems	1105
<i>Michel Cotsaftis</i>	
An Effective Local Routing Strategy on the Communication Network . . .	1118
<i>Yu-jian Li, Bing-hong Wang, Zheng-dong Xi, Chuan-yang Yin, Han-xin Yang, and Duo Sun</i>	
Average Consensus in Delayed Networks of Dynamic Agents with Impulsive Effects	1124
<i>Quanjun Wu, Lan Xiang, and Jin Zhou</i>	
Basic Notions and Models in Systems Science	1139
<i>Janos Korn</i>	
Bifurcation Phenomena of Opinion Dynamics in Complex Networks	1146
<i>Long Guo and Xu Cai</i>	
Community Detection of Time-Varying Mobile Social Networks	1154
<i>Shu-Yan Chan, Pan Hui, and Kuang Xu</i>	
Collaborative Transportation Planning in Complex Adaptive Logistics Systems: A Complexity Science-Based Analysis of Decision-Making Problems of "Groupage Systems"	1160
<i>Michael Hülsmann, Herbert Kopfer, Philip Cordes, and Melanie Bloos</i>	

Classification Based on the Optimal K -Associated Network 1167
Alneu A. Lopes, João R. Bertini Jr., Robson Motta, and Liang Zhao

Characterizing the Structural Complexity of Real-World Complex
Networks 1178
Jun Wang and Gregory Provan

Table of Contents – Part II

Chaotic and Hyperchaotic Attractors in Time-Delayed Neural Networks	1193
<i>Dong Zhang and Jian Xu</i>	
Channel Estimation and ISI/ICI Cancellation for MIMO-OFDM Systems with Insufficient Cyclic Prefix	1203
<i>Yi-Jen Chiu, Chien-Sheng Chen, and Ting-Wei Chang</i>	
Capturing Internet Traffic Dynamics through Graph Distances	1213
<i>Steve Uhlig, Bingjie Fu, and Almerima Jamakovic</i>	
Cache Allocation in CDN: An Evolutionary Game Generalized Particle Model	1226
<i>Xiang Feng, Francis C.M. Lau, and Daqi Gao</i>	
Briefly Review of China High Technology Networks	1238
<i>Yong Li, Jin-Qing Fang, and Qiang Liu</i>	
Block & Comovement Effect of Stock Market in Financial Complex Network	1248
<i>Chongwei Du, Xiong Wang, and Liyin Qiu</i>	
An Approach to Enhance Convergence Efficiency of Self-propelled Agent System	1261
<i>Jian-xi Gao, Zhuo Chen, Yun-ze Cai, and Xiao-ming Xu</i>	
An Application on Merton Model in the Non-efficient Market	1270
<i>Yanan Feng and Qingxian Xiao</i>	
A Novel Software Evolution Model Based on Software Networks	1281
<i>Weifeng Pan, Bing Li, Yutao Ma, and Jing Liu</i>	
A Novel Measurement of Structure Properties in Complex Networks	1292
<i>Yanni Han, Jun Hu, Deyi Li, and Shuqing Zhang</i>	
A New Genetic Algorithm for Community Detection	1298
<i>Chuan Shi, Yi Wang, Bin Wu, and Cha Zhong</i>	
A New Bio-inspired Approach to the Traveling Salesman Problem	1310
<i>Xiang Feng, Francis C.M. Lau, and Daqi Gao</i>	
A More Strict Definition of Steady State Degree Distribution	1322
<i>Xiaojun Zhang and Zheng He</i>	

A Max-Min Principle for Phyllotactic Patterns	1329
<i>Wai-Ki Ching, Yang Cong, and Nam-Kiu Tsing</i>	
A Hybrid Ant-Colony Routing Algorithm for Mobile Ad-Hoc Networks	1337
<i>Shahab Kamali and Jaroslav Opatrny</i>	
A Grid Resource Scheduling Algorithm Based on the Utility Optimization	1355
<i>Jiang Chen, Jian Peng, and Xiaoyang Cao</i>	
A Generating Method for Internet Topology with Multi-ASes and Multi-tiers	1363
<i>Jian-qiang Liu, Jiang-xing Wu, Xiao Huang, and Dan Li</i>	
A Firm-Growing Model and the Study of Communication Patterns’ Effect on the Structure of Firm’s Social Network	1374
<i>Liang Chen, Haigang Li, Zhong Chen, Li Li, and Da-Ren He</i>	
A Preliminary Study on the Effects of Fear Factors in Disease Propagation	1387
<i>Yubo Wang, Jie Hu, Gaoxi Xiao, Limsoon Wong, Stefan Ma, and Tee Hiang Cheng</i>	
A Social Network Model Based on Topology Vision	1398
<i>Ping-Nan Hsiao</i>	
An Adaptive Strategy for Resource Allocation with Changing Capacities	1410
<i>Yingni She and Ho-fung Leung</i>	
An Adaptive Markov Chain Monte Carlo Method for GARCH Model ...	1424
<i>Tetsuya Takaishi</i>	
Almost Periodicity and Distributional Chaos in Banach Space	1435
<i>Lidong Wang and Shi Tang</i>	
Allometric Scaling of Weighted Food Webs	1441
<i>Jiang Zhang</i>	
Agent-Based Modeling and Simulation on Emergency Evacuation	1451
<i>Chuanjun Ren, Chenghui Yang, and Shiyao Jin</i>	
Adjustable Consensus of Mobile Agent Systems with Heterogeneous Delays	1462
<i>Hongyong Yang and Guangdeng Zong</i>	
Adaptive Routing Approaches of Controlling Traffic Congestion in Internet	1472
<i>Zonghua Liu, Ming Tang, and Pak Ming Hui</i>	

A Study of Tacit Knowledge Transfer Based on Complex Networks Technology in Hierarchical Organizations	1485
<i>Tingting Cheng, Hengshan Wang, and Lubang Wang</i>	
A Stochastic Model for Layered Self-organizing Complex Systems	1495
<i>Yuri Dimitrov and Mario Lauria</i>	
A Statistical Study on Oscillatory Protein Expression	1504
<i>Shiwei Yan</i>	
A Comparative Analysis of Specific Spatial Network Topological Models	1514
<i>Jun Wang and Gregory Provan</i>	
Generalized Greedy Algorithm for Shortest Superstring	1526
<i>Zhengjun Cao, Lihua Liu, and Olivier Markowitch</i>	
Extinction and Coexistence in the Internet Market as Complex Networks	1532
<i>Jiandong Zhao, Liping Fu, Rongfu Cheng, and Jiong Ruan</i>	
Exponential Synchronization of General Complex Delayed Dynamical Networks via Adaptive Feedback Control.....	1540
<i>Haifeng Zhang and Binghong Wang</i>	
Exploring and Understanding Scientific Metrics in Citation Networks ...	1550
<i>Mikalai Krapivin, Maurizio Marchese, and Fabio Casati</i>	
Evolving Specialization, Market and Productivity in an Agent-Based Cooperation Model.....	1564
<i>Erbo Zhao, Guo Liu, Dan Luo, Xing'ang Xia, and Zhangang Han</i>	
Evolving Model of Weighted Networks	1575
<i>Xianmin Geng, Hongwei Zhou, and Guanghui Wen</i>	
Evolutionary Prisoner's Dilemma Game in Flocks	1591
<i>Zhuo Chen, Jianxi Gao, Yunze Cai, and Xiaoming Xu</i>	
Evolutionary Game in a Single Hub Structure	1597
<i>Xiaolan Qian and Junzhong Yang</i>	
Evolution of the Internet AS-Level Ecosystem	1605
<i>Srinivas Shakkottai, Marina Fomenkov, Ryan Koga, Dmitri Krioukov, and Kc Claffy</i>	
European Airlines' TFP and the 2001 Attack: Towards Safety in a Risk Society	1617
<i>Panayotis Michaelides, Kostas Theologou, and Angelos Vouldis</i>	

Establishing Causality in Complex Human Interactions: Identifying Breakdowns of Intentionality	1631
<i>Peter Goodison, Peter Johnson, and Joanne Thoms</i>	
Extremal Dependencies and Rank Correlations in Power Law Networks	1642
<i>Yana Volkovich, Nelly Litvak, and Bert Zwart</i>	
Finding Sales Promotion and Making Decision for New Product Based on Group Analysis of Edge-Enhanced Product Networks	1654
<i>Yi Huang, Jianbin Tan, and Bin Wu</i>	
Fingerprint for Network Topologies	1666
<i>Yuchun Guo, Changjia Chen, and Shi Zhou</i>	
Generalized Farey Tree Network with Small-World	1678
<i>Jin-Qing Fang and Yong Li</i>	
Fuzzy Entropy Method for Quantifying Supply Chain Networks Complexity	1690
<i>Jihui Zhang and Junqin Xu</i>	
Further Study on Proxy Authorization and Its Scheme	1701
<i>Xuanwu Zhou, Yang Su, and Ping Wei</i>	
Funnelling Effect in Networks	1719
<i>Parongama Sen</i>	
Frequency Domain Analysis of a Stochastic Biological Network Motif with Delay	1731
<i>Qi Wang, Shiwei Yan, Shengjun Liu, and Xian Li</i>	
Frequency Distributions of Sand Pile Models	1743
<i>Ruey-Tarnng Liu</i>	
Framework for Visualisation of Cancer Tumours	1750
<i>Yin Jie Chen, Razvan Bocu, Mark Tangney, and Sabin Tabirca</i>	
FLECS: A Framework for Rapidly Implementing Forwarding Protocols	1761
<i>Mirza Beg</i>	
Firm Size Distribution in <i>Fortune Global 500</i>	1774
<i>Qinghua Chen, LiuJun Chen, and Kai liu</i>	
Finite Time Ruin Probability in Non-standard Risk Model with Risky Investments	1783
<i>Tao Jiang</i>	

Epidemic Self-synchronization in Complex Networks	1794
<i>Ingo Scholtes, Jean Botev, Markus Esch, and Peter Sturm</i>	
Entropy Based Detection of DDoS Attacks in Packet Switching Network Models	1810
<i>Anna T. Lawniczak, Hao Wu, and Bruno Di Stefano</i>	
Enhancing the Scale-Free Network's Attack Tolerance	1823
<i>Zehui Qu, Pu Wang, and Zhiguang Qin</i>	
Degree-Distribution Stability of Growing Networks	1827
<i>Zhenting Hou, Xiangxing Kong, Dinghua Shi, Guanrong Chen, and Qinggui Zhao</i>	
Degree Distribution of a Two-Component Growing Network	1838
<i>Jianhong Ke and Xiaoshuang Chen</i>	
Correlation Properties and Self-similarity of Renormalization Email Networks	1846
<i>Lianming Zhang, Sundong Liu, Yuling Tang, and Hualan Xu</i>	
Constructing Searchable P2P Network with Randomly Selected Long-Distance Connections	1860
<i>Jingbo Shen, Jinlong Li, and Xufa Wang</i>	
Conservation of Edge Essentiality Profiles in Metabolic Networks Across Species	1865
<i>Tomasz Arodz</i>	
Consensus Seeking and Controlling over Directed Delayed Networks	1877
<i>Jianquan Lu and Daniel W.C. Ho</i>	
Complex Systems in Cosmology: "The Antennae" Case Study	1887
<i>Jean-Claude Torrel, Claude Lattaud, and Jean-Claude Heudin</i>	
Complex Modelling of Open System Design for Sustainable Architecture	1898
<i>Yan Gu and John Frazer</i>	
Comparing Networks from a Data Analysis Perspective	1907
<i>Wei Li and Jing-Yu Yang</i>	
Community Structure Detection in Complex Networks with Applications to Gas-Liquid Two-Phase Flow	1917
<i>Zhongke Gao and Ningde Jin</i>	
Design of Multiphase Sinusoidal Oscillator Based on FTFN	1929
<i>YanHui Xi and LiangYu Peng</i>	

Designing Capital-Intensive Systems with Architectural and Operational Flexibility Using a Screening Model	1935
<i>Jijun Lin, Olivier de Weck, Richard de Neufville, Bob Robinson, and David MacGowan</i>	
Detecting Gross Errors for Steady State Systems	1947
<i>Congli Mei</i>	
Enhancing Synchronization in Systems of Non-identical Kuramoto Oscillators	1955
<i>Markus Brede</i>	
Enhancement of Synchronizability of the Kuramoto Model with Assortative Degree-Frequency Mixing	1967
<i>Jin Fan and David J. Hill</i>	
Emergence of Scale-Free Networks with Seceding Mechanism	1973
<i>Xian-Min Geng, Guang-Hui Wen, Shu-Chen Wan, and Jie-Yu Xiong</i>	
Emergence and Simulation	1984
<i>Alan Baker</i>	
Ecological Research of the Voluntary Disclosure about Listed Companies	1997
<i>Jing-Jing Hu and Guang-Le Yan</i>	
Dynamics of Research Team Formation in Complex Networks	2004
<i>Caihong Sun, Yuzi Wan, and Yu Chen</i>	
Dynamic Regimes of a Multi-agent Stock Market Model	2016
<i>Tongkui Yu and Honggang Li</i>	
Differential Forms: A New Tool in Economics	2029
<i>Jürgen Mimkes</i>	
Development of Road Traffic CA Model of 4-Way Intersection to Study Travel Time	2040
<i>Anna T. Lawniczak and Bruno N. Di Stefano</i>	
Community Identification in Directed Networks	2050
<i>Youngdo Kim, Seung-Woo Son, and Hawoong Jeong</i>	
Complex Multi-modal Multi-level Influence Networks - Affordable Housing Case Study -	2054
<i>Patrick Beaument and Christine Brönnner</i>	
Collective Aggregation Pattern Dynamics Control via Attractive/Repulsive Function	2064
<i>Michael Z.Q. Chen, Zhao Cheng, Hai-Tao Zhang, Tao Zhou, and Ian Postlethwaite</i>	

Transforming Time Series into Complex Networks	2078
<i>Michael Small, Jie Zhang, and Xiaoke Xu</i>	
Power Law Modelling of Internet Topology	2090
<i>Shi Zhou</i>	
Observing Stock Market Fluctuation in Networks of Stocks	2099
<i>C.K. Tse, J. Liu, F.C.M. Lau, and K. He</i>	
Networks That Optimize a Trade-Off between Efficiency and Dynamical Resilience	2109
<i>Markus Brede and Bert J.M. de Vries</i>	
Modelling of Epidemics with a Generalized Nonlinear Incidence on Complex Networks	2118
<i>Maoxing Liu and Jiong Ruan</i>	
Modeling Failure Propagation in Large-Scale Engineering Networks	2127
<i>Markus Schläpfer and Jonathan L. Shapiro</i>	
Modeling and Dynamical Analysis of Molecular Networks	2139
<i>Ruiqi Wang, Xing-Ming Zhao, and Zengrong Liu</i>	
Eigenvalue Based Stability Analysis for Asymmetric Complex Dynamical Networks	2149
<i>Zengqiang Chen, Linying Xiang, Zhongxin Liu, Zhuzhi Yuan, and Kai Chang</i>	
Collective Behavior Coordination and Aggregation with Low-Cost Communication	2159
<i>Hai-Tao Zhang, Michael Z.Q. Chen, Tao Zhou, Zhao Cheng, and Pin-Ze Yu</i>	
Visual Analysis of Complex Networks and Community Structure	2171
<i>Bin Wu, Qi Ye, Yi Wang, Ran Bi, Lijun Suo, Deyong Hu, and Shengqi Yang</i>	
Complex Phenomena in Orchestras – Metaphors for Leadership and Enterprise	2184
<i>Patrick Beaument and Christine Brönnner</i>	
Composing Music with Complex Networks	2196
<i>Xiaofan Liu, Chi K. Tse, and Michael Small</i>	
Hopfield’s Model of Patterns Recognition and Laws of Artistic Perception	2206
<i>Igor Yevin and Alexander Koblyakov</i>	
Music, New Aesthetic and Complexity	2212
<i>David Adams and Paolo Grigolini</i>	

Rank-Size Distribution of Notes in Harmonic Music: Hierarchic Shuffling of Distributions	2222
<i>Manuel Beltrán del Río and Germinal Cocho</i>	
Dynamics of Priority-Queue Networks	2229
<i>Byung-Joon Min, Kwang-Il Goh, and In-mook Kim</i>	
Generalized Thermodynamics Underlying the Laws of Zipf and Benford.....	2232
<i>Carlo Altamirano and Alberto Robledo</i>	
The Main Principles of Simulation Modeling of the Sustainable Development Complexes System: Case of World Economy	2238
<i>Dmitry Chistilin</i>	
Towards the Characterization of Individual Users through Web Analytics	2247
<i>Bruno Gonçalves and José J. Ramasco</i>	
Control Mode of Public Emergency Response	2255
<i>Ze-Meng Fan, Wen-Yuan Niu, and Ji-Fa Gu</i>	
The Influence Factors and Mechanism of Societal Risk Perception	2266
<i>Rui Zheng, Kan Shi, and Shu Li</i>	
Social Physics and the Flow of Migrant Peasant Workers	2276
<i>Li Ding and Wang Yun-Lin</i>	
Social Physics and China's Population Migration.....	2283
<i>Yun-lin Wang and Ding Li</i>	
Social Combustion Theory: Dynamics of Social System Deterioration ...	2293
<i>Wen-yuan Niu</i>	
Research on the Best Time to Intervene into Network Public Opinion for Managers -Based on “Nankai Buick Affair”-	2300
<i>Meiyang Chen and Yijun Liu</i>	
Research on Social Stability Mechanisms Based on Activation Energy and Gradual Activation Reaction Theory	2309
<i>Miao Ning and Jifa Gu</i>	
Research on Early Warning of Chinese Food Safety Based on Social Physics	2324
<i>Yonghuan Ma, Wenyuan Niu, and Qianqian Li</i>	
Qualitative Meta-synthesis Techniques for Analysis of Public Opinions for in-depth Study	2338
<i>Xijin Tang</i>	

Opinion Modeling Based on Meta-synthesis Approach	2354
<i>Yijun Liu</i>	
Expert Mining for Solving Social Harmony Problems	2365
<i>Jifa Gu, Wuqi Song, Zhengxiang Zhu, and Yijun Liu</i>	
Two-Dimensional Coupling Model on Social Deprivation and Its Application	2370
<i>Yun Fu</i>	
Internal-Evolution Driven Growth in Creation-Annihilation Cyclic Games.....	2377
<i>Xiao-Pu Han, Luo-Luo Jiang, Tao Zhou, and Bing-Hong Wang</i>	
Immunization of Geographical Networks	2388
<i>Bing Wang, Kazuyuki Aihara, and Beom Jun Kim</i>	
Stabilities of Stock States in Chinese Stock Markets	2396
<i>Gyuchang Lim, Kyungho Seo, Soo Yong Kim, and Kyungsik Kim</i>	
A Priority Queue Model of Human Dynamics with Bursty Input Tasks.....	2402
<i>Jin Seop Kim, Naoki Masuda, and Byungnam Kahng</i>	
Modelling Uncertainty of Behaviour of Complex Economic System	2411
<i>Konstantin Kovalchuk</i>	
Author Index	2421