

The Tenth **I**nternational **S**ymposium on **O**perations  
**R**esearch and its **A**pplications

# ISORA 2011

## Program

August 28-31, 2011  
Dunhuang, China

### Local Organizer



### Sponsors





# Message from the Chairman

Dear ladies and gentlemen

Welcome to ISORA 2011. This is the tenth symposium under the name ISORA since the first ISORA was held in Beijing sixteen years ago in 1995. The sixteen years make us become old friends and it is just what keeping us to run ISORA more successfully.

This year, 2011, is an unusual year, serious earthquake attacked our neighbor, Japan. Financial crisis feazes all countries in the world. China has found himself facing an inflation threat. All these call for a more efficient management for resource, production and consumption. On the other hand, mankind does not stop on the way of development. New science theory and new product emerge endlessly

All these push OR people to pay more attention to OR application. We are happy to see some new branches of OR with explicit application background being setup and become popular topics, for example, such as “Emergency Logistics Management” or “Disaster Management”, “Complex Network Theory and Application”, “Computational Biology based on OR Methodology”. All these new topics are involved in this symposium.

As an organizer, I thank the National Natural Science Foundation of China (NSFC), the Chinese Academy of Science (CAS), and APORC (Asia-Pacific OR Center). Without their support we can't make a successful ISORA in nowadays financial environment. Thanks are also given to all participants.

Good wish, from all the organizing committee members, to you for a fruitful stay in Dunhuang.

Chairman of ISORA  
Xiang-Sun Zhang

18, August, 2011

# ISORA 2011 Program

The 10th International Symposium on Operations Research and its Applications  
August 28-31, 2011, Dunhuang, China

## August 27 (Saturday)

17:00-24:00 Participants arrival in Dunhuang. Check in Dunhuang Grand Sun Hotel.

Registration package pickup (at the lobby of Dunhuang Grand Sun Hotel)

19:00-20:30 Dinner

## August 28 (Sunday) Technical Sessions

08:00-9:30 Registration for late arrivals (at lobby of Dunhuang Grand Sun Hotel)

09:30-09:50 Opening Session (Shazhou Hall of the hotel)

09:50-11:50 Plenary Session

Chair: Xiang-Sun Zhang/Masanori Fushimi

Location: Shazhou Hall

09:50-10:50 *On Two Issues of Molecular Network Models in Systems Biology*, Prof. **Katsuhisa**

**Horimoto**, Computational Biology Research Center, National Institute of Advanced Industrial Science and Technology, Japan

**Abstract:** Two points are definitely different between network models in systems biology and those in engineering fields. One is that most network models (structures) in biology are not static but change depending on external conditions, and the other is that the models including unmeasured variables frequently emerged so as to measure the variables under the conditions with as less perturbation to the organism as possible. To consider the two points specific to systems biology, we have designed two methods by statistical and symbolic-computation approaches, respectively. Here, we will describe the methods with their merits and pitfalls.

10:50-11:50 *Mean Residual Life Models with Time-Dependent Coefficient under Right Censoring*,

Prof. **Liuquan Sun**, Academy of Mathematics and Systems Science, Chinese Academy of Sciences, China

**Abstract:** The mean residual life provides the remaining life expectancy of a subject surviving up to a certain time point. When covariates are present, regression models are needed to study the association between the mean residual life function and potential regression covariates. In this paper, we propose a flexible class of semiparametric mean residual life models where some effects may be time-varying and some may be constant over time. In the presence of right censoring, we make use of the inverse probability of censoring weighting approach and develop inference procedures for estimating the model parameters. In addition, we provide graphical and numerical methods for model checking and tests for examining whether or not the covariate effects vary with time. Both asymptotic and finite sample properties of the proposed estimators are established and the approach is applied to real life data sets

collected from clinical trials.

**12:00-14:00 Lunch break**

**14:00-15:40 Parallel Sessions A1/B1**

**14:00-15:40 Parallel Session A1: *Graph Theory and Combinatorics***

**Chair: Prof. Ping Ji**

**Location: Shazhou Hall**

- 14:00-14:20 *Partitioning Trees with Supply, Demand and Edge-Capacity*, **Masaki Kawabata, Takao Nishizeki**, School of Science and Technology, Kwansei Gakuin University, Japan
- 14:20-14:40 *A Transitive Reduction Approach to the Precedence-Constrained Knapsack Problem*, **Byungjun You, Takeo Yamada**, Department of Computer Science, The National Defense Academy, Japan
- 14:40-15:00 *Computing an Integer Point in a Class of Polytopes*, **Chuangyin Dang**, Yinyu Ye. Department of Systems Engineering & Engineering Management, City University of Hong Kong, Kowloon, Hong Kong, China
- 15:00-15:20 *Absolutely Secure Message Transmission Using a Key Sharing Graph*, **Yoshihiro Indo**, Takaaki Mizuki, **Takao Nishizeki**, School of Science and Technology, Kwansei Gakuin University, Japan
- 15:20-15:40 *Scheduling Problem with Discretely Compressible Release Dates*, **Shu-Xia Zhang**, Bao-Qiang Fan, Department of Watercraft Command Zhenjiang Watercraft College, China

**14:00-15:40 Parallel Session B1: *Management Sciences***

**Chair: Prof. Hozumi Morohosi**

**Location: Meeting Room in 2<sup>nd</sup> floor**

- 14:00-14:20 *Applying Mathematical Programming Food Supply Model for Improving Japan's Food Self-Sufficiency Ratio*, **Kunihisa Yoshii**, Tatsuo Oyama, Ministry of Agriculture, Forestry And Fishery, Central Government Bldg, Tokyo, Japan
- 14:20-14:40 *An Emergency Evacuation Planning Model using the Universally Quickest Flow*, **Atsushi Takizawa**, Masaki Inoue, Naoki Katoh., Department of Architecture and Architectural Engineering, Kyoto University, Japan
- 14:40-15:00 *Stochastic Cash Management Problem with Double Exponential Jump Diffusion Processes*, **Kimitoshi Sato, Atsuo Suzuki**, Graduate School of Finance, Accounting and Law, Waseda University, Japan
- 15:00-15:20 *Studies on Tenuring Collection Times for a Generational Garbage Collector*, Xufeng Zhao, **Cunhua Qian, Syouji Nakamura**, Department of Human Life and Information Kinjo Gakuin University, Nagoya, Japan
- 15:20-15:40 *Application of Interval-PROMETHEE Method for Decision Making in Investing*, **Shuanghong Qu**, Hua Li, **Xiaoli Guo**, Department of Mathematics and Information Science, Zhengzhou University of Light Industry, China,

**15:40-16:00 Coffee Break**

**16:00-17:40 Parallel Sessions A2/B2**

**16:00-16:20 Parallel Session A2: OR Applications I**

**Chair: Prof. Wuyi Yue**

**Location: Shazhou Hall**

- 16:00-16:20 *Application of Post-Optimality Analysis in Process Engineering*, **Abdallah Al-Shammari**, Chemical Engineering Department King Fahd University of Petroleum & Minerals, Dhahran 31261, Saudi Arabia
- 16:20-16:40 *A Flexible Convex Optimization Model for Semi-supervised Clustering with instance-level Constraints*, **Xianwen Ren**, Yong Wang, Xiang-Sun Zhang, State Key Laboratory for Molecular Virology and Genetic Engineering, Institute of Pathogen Biology, Chinese Academy Medical Sciences and Peking Union Medical College, Beijing, China
- 16:40-17:00 *Improved Melanoma Diagnosis Support System Based on Fractal Analysis of Images*, Karol Przystalski, Maigorzata Popik, **Maciej Ogorzalek**, Leszek Nowak., Department of Molecular Biology and Biotechnology, Jagiellonian University, Krakow, Poland
- 17:00-17:20 *An Assessment Study on Innovation Ability and Innovation Potentiality for Daqing Oilfield*, Huai-Bao Lu, Xiao-Bing Li, **Qia Wang**, Jin-Xia Chen, **Jin-Chuan Cui**, Institute of Applied Mathematics, Academy of Mathematics and Systems Science, CAS, Beijing, China
- 17:20-17:40 *Analysis of a Two-Phase Queueing System with Impatient Customers and Multiple Vacations*, Dequan Yue, **Wuyi Yue**, Xiuju Li, Department of Intelligence and Informatics, Konan University, Kobe, Japan

**16:00-17:40 Parallel Session B2: Algorithms Design and Analysis**

**Chair: Prof. Maciej Ogorzalek**

**Location: Meeting Room in 2<sup>nd</sup> floor**

- 16:00-16:20 *An Improved Artificial Bee Colony Algorithm for the Capacitated Vehicle Routing Problem with Time-dependent Travel Times*, **Ping Ji**, Yongzhong Wu, Department of Industrial and Systems Engineering, The Hong Kong Polytechnic University, Hong Kong, China
- 16:20-16:40 *Hybrid Quasi-Monte Carlo Method for the Simulation of State Space Models*, **Hozumi Morohosi**, National Graduate Institute for Policy Studies 7-22-1 Roppongi, Minato-ku, Tokyo, Japan
- 16:40-17:00 *Studies on the Heuristic Algorithm for the N-Vehicle Exploration Problem (NVEP)*, **Ruo-Yang Liu**, Huai-Bao Lu, **Jin-Chuan Cui**, Xiao-Bing Li Institute of Applied Mathematics, Academy of Mathematics and Systems Science, CAS, Beijing China
- 17:00-17:20 *An Approximation Algorithm for The Stochastic Fault-tolerant Facility Location Problem*, **Chen-Chen Wu**, **Da-Chuan Xu**, Jia Shu. Department of Applied Mathematics, Beijing University of Technology, China.
- 17:20-17:40 *Multistart Local Search Continuous Global Optimization Method with a Taboo Step and its Condition for Finding the Global Optimum*, **Hideo Kanemitsu**, Course of Computer and Information Sciences Hakodate Campus, Hokkaido University of

Education, Hachimancho, Hakodate, Japan

**18:00-20:00 Welcome Reception Dinner (Dunhuang Grand Sun Hotel)**

## **August 29 (Monday) Technical Sessions**

**9:00-12:00 Conference activities**

**Discussions on OR in emergency management**

**9:00-12:00 Poster Session I**

**Chair: Prof. Wuyi Yue**

**Location: Dunhuang Grand Sun Hotel. (Room to be announced)**

1. Subordinated Gaussian Processes, The Log-Return Principles, Stergios B. Fotopoulos  
Yu-Xing Luo, Washington State University, USA
2. A Non-monotone Adaptive Trust Region Algorithm For Nonlinear Equations Hong-Wei Liu,  
School of Information, Beijing Wuzi University, Beijing 101149, China
3. Sensitivity Analysis for Wealth Process, Laouar Amel, Boukhetala Kamel, ENSSMAL,  
Algiers, Alegria
4. The Team Orienteering Problem with Capacity, Constraint and TimeWindow, Zhenping Li,  
Xianman Hu, School of Information, Beijing Wuzi University, Beijing 101149,China
5. Linear Programming for Portfolio Selection, Based on Fuzzy Decision-Making Theory,  
Hong-Wei Liu, School of Information, Beijing Wuzi University, Beijing 101149, China
6. A Fuzzy Model of Scenario Planning Based on the Credibility Theory And Fuzzy  
Programming Zhong-Guo Shi School of Management and Economics, University of  
Electronic Science & Technology of china, Chengdu , China

**12:30-15:30 Lunch break**

**15:30-18:00 Parallel Sessions A3/B3**

**15:30-16:50 Parallel Session A3: Complex Network**

**Chair: Prof. LingYun Wu**

**Location: Shazhou Hall**

- 15:30-15:50 *A SVC-based Method to Detect Multi-scalar Noisy Communities in Complex Networks*, **Jun-Fei Zhao**, Jiguang Wang, Xiang-Sun Zhang. Academy of Mathematics and Systems Science, Chinese Academy of Sciences, Beijing 100190, China
- 15:50-16:10 *A Regularized Optimization Model for Community Identification in Complex Networks*, **Yong Wang**, Jiguang Wang, Chen Chen, Xiang-Sun Zhang. National Center for Mathematics and Interdisciplinary Sciences, Academy of Mathematics and Systems Science, CAS, Beijing, China
- 16:10-16:30 *Multiple Resolution Community Structure Analysis*, Shoujun Xu, Jiguang Wang, **Junhua Zhang**, Xiang-Sun Zhang. Academy of Mathematics and Systems Science, Chinese Academy of Sciences, Beijing, China

**15:30-16:50 Parallel Session B3: OR Applications II**

**Chair: Prof. Jinchuan Cui**

**Location: Meeting Room in 2<sup>nd</sup> floor**

15:30-15:50 *PSPACE-completeness of the Weighted Poset Game*, **Hiro Ito**, Satoshi Takata, School of Informatics, Kyoto University, Kyoto 606-8501, Japan

15:50-16:10 *The Multi-Level Economic Lot-Sizing Game*, **Gai-Di Li**, Dong-Lei Du, **Da-Chuan Xu**, Ru-Yao Zhang, Department of Applied Mathematics, Beijing University of Technology, Beijing, China

16:10-16:30 *Approximate Fenchel-Lagrangian Duality for Constrained Set-Valued Optimization Problems*, Hai-Jun Wang, **Cao-Zong Cheng**, Xiao-Dong Fan, Department of Mathematics, Beijing University of Technology, Beijing 100124, P.R. China

16:30-16:50 *The Impact of Quality Regulation on the Decisions of a Global Supply Chain*, **Gang Xie**, Wuyi Yue, Shouyang Wang, Academy of Mathematics and Systems Science, Chinese Academy of Sciences, China

**16:50-17:10 Coffee Break**

**17:10-18:00 Panel Discussion Session A4: Complex Network**

**Chair: Prof. Xiang-Sun Zhang**

**Location: Shazhou Hall**

**17:10-18:00 Panel Discussion Session B4: Computational Systems Biology**

**Chair: Prof. Katsuhisa Horimoto**

**Location: Meeting Room in 2<sup>nd</sup> floor**

**19:00-21:30 Banquet (Dunhuang Grand Sun Hotel)**

## **August 30 (Tuesday) Technical Sessions**

**08:30-17:00 Conference activities**

**Discussions on Next ISORA Theme & Plan**

**08:30-17:00 Poster Session II**

**Chair: Prof. Degang Liu**

**Location: Dunhuang Grand Sun Hotel. (Room to be announced)**

1. Fuzzy Comprehensive Evaluation of Social Responsibility of State Grid Corporation of China  
Caiqing Zhang, Mengmeng Cao, School of Business Administration, North China Electric Power University Baoding, China
2. Consumer's Optimal Choice on lp Commodity Space, Jin-Shan Li, San-qiang Wang, Jia-Rong Gao, College of Science, Beijing Forestry University, Beijing 100083, Beijing China
3. Limited Resource Allocation Games With Activation Cost, Fang Xie, Yu-zhong Zhang, Hong-li Zhu, College of Management Science, Qufu Normal University, Rizhao, Shandong, P.R. China

4. Analysis on Employment Conditions of Mining City, Zhuo Wang, Wen-Qing Niu, College of Resources and Environmental Engineering, Liaoning Technical University, Fuxin Liaoning, China
5. Efficiency Frontier for Chinese Stock Markets under Influence of Financial Crises, An-Guo Wang, School of Finance & Economics, Guang Dong University of Foreign Studies, Guangzhou, China
6. Fuzzy-ANP based Research on the Risk Assessment of Runway Excursion, Zi-Qi Ju, College of Safety Science & Engineering Civil Aviation University of China, Tianjin, China

**18:00-19:30 Dinner**