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## I. PROGRAM OUTLINE

### TIME TABLE

<b>Time</b>	<b>Morning</b>	<b>Noon</b>	<b>Afternoon</b>	<b>Evening</b>
<b>June 6</b>	8:30-12:00 Registration		12:00-19:00 Registration	19:00-21:00 Reception
<b>June 7</b>	8:30-8:45 Opening Ceremony of SNSA'07  8:45-10:45 Plenary Talks I  10:45-11:00 Coffee Break  11:00-13:00 Plenary Talks II	13:00-14:30 Lunch	14:30-16:30 SS-1-1,SS-5,MS-2  16:30-16:45 Coffee Break  16:45 - 18:00 SS-1-2	19:00-21:00
<b>June 8</b>	8:15-10:15 MS-3-1,SS-2, SS-9, SS-7  10:15-10:30 Coffee Break  10:30-12:30 MS-3-2,SS-10, SS-3, MS-8	12:30-14:00 Lunch	14:00-16:00 MS-3-3,SS-4, MS-6, SS-11	18:30 Leaving Shanghai for Hangzhou
<b>June 9</b>	8:30-8:45 Opening Ceremony of IWNBD'07  8:45-10:45 Plenary Talks III  10:45-11:00 Coffee Break  11:00-13:00 Plenary Talks IV	13:00-14:00 Lunch	14:00-17:30 SS-6,MS-7,SS-8	18:15-18:30 Closing Ceremony  18:30-20:30 Banquet
<b>June 10</b>	Sightseeing in Hangzhou	12:30-13:30 Lunch	Sightseeing in Hangzhou	18:30 Coming back to Shanghai

**June 7 , Shanghai**

	<b>Rm1</b>	<b>Rm2</b>	<b>Rm3</b>	<b>Rm4</b>	<b>Rm5</b>
<b>8:30 —10:45</b>	<b>PL-1</b>				
<b>11:00 —13:00</b>	<b>PL-2</b>				
<b>14:30 —16:30</b>		<b>SS-1-1</b>	<b>SS-5</b>	<b>MS-2</b>	
<b>16:45 —18:15</b>		<b>SS-1-2</b>			

**June 8, Shanghai**

	<b>Rm1</b>	<b>Rm2</b>	<b>Rm3</b>	<b>Rm4</b>	<b>Rm5</b>
<b>8:15 —10:15</b>		<b>MS-3-1</b>	<b>SS-2</b>	<b>SS-9</b>	<b>SS-7</b>
<b>10:30 —12:30</b>		<b>MS-3-2</b>	<b>SS-10</b>	<b>SS-3</b>	<b>MS-8</b>
<b>14:00 —16:00</b>		<b>MS-3-3</b>	<b>SS-4</b>	<b>MS-6</b>	<b>SS-11</b>
<b>16:15 —17:45</b>					

**June 9, Hangzhou**

	<b>Rm6</b>	<b>Rm7</b>	<b>Rm8</b>	<b>Rm9</b>	<b>Rm10</b>
<b>8:30 —10:45</b>	<b>PL-3</b>				
<b>11:00 —13:00</b>	<b>PL-4</b>				
<b>14:00 —17:20</b>		<b>SS-6</b>	<b>MS-7</b>	<b>SS-8</b>	

### **Room Abbreviations:**

- Rm1:** Conference Hall, 1st Floor, East Building, Guanghua Towers, Fudan University
- Rm2:** Room 2001, East Building, Guanghua Towers, Fudan University
- Rm3:** Room 1801, East Building, Guanghua Towers, Fudan University
- Rm4:** Room 1704, East Building, Guanghua Towers, Fudan University
- Rm5:** Room 1415, East Building, Guanghua Towers, Fudan University
- Rm6:** Room 117, Shao Yifu Science Hall of Zhejiang University
- Rm7:** Room 211, Shao Yifu Science Hall of Zhejiang University
- Rm8:** Room 212, Shao Yifu Science Hall of Zhejiang University
- Rm9:** Room 203, Shao Yifu Science Hall of Zhejiang University
- Rm10:** Room 205, Shao Yifu Science Hall of Zhejiang University

### **Mini-symposium Abbreviations and Index:**

- MS-2:** Oscillations and Complex Dynamics in Biological Systems
- MS-3:** Nonlinear Differential Equations and Applications in Physics and Engineering
- MS-6:** Entanglement and Phylogenetics - A Strange Coincidence of  
Methods Developed in very Different Contexts OR Network Alignment:  
What, Why, and How?
- MS-7:** Collective Behaviors in Complex Networks
- MS-8:** Financial Mathematics

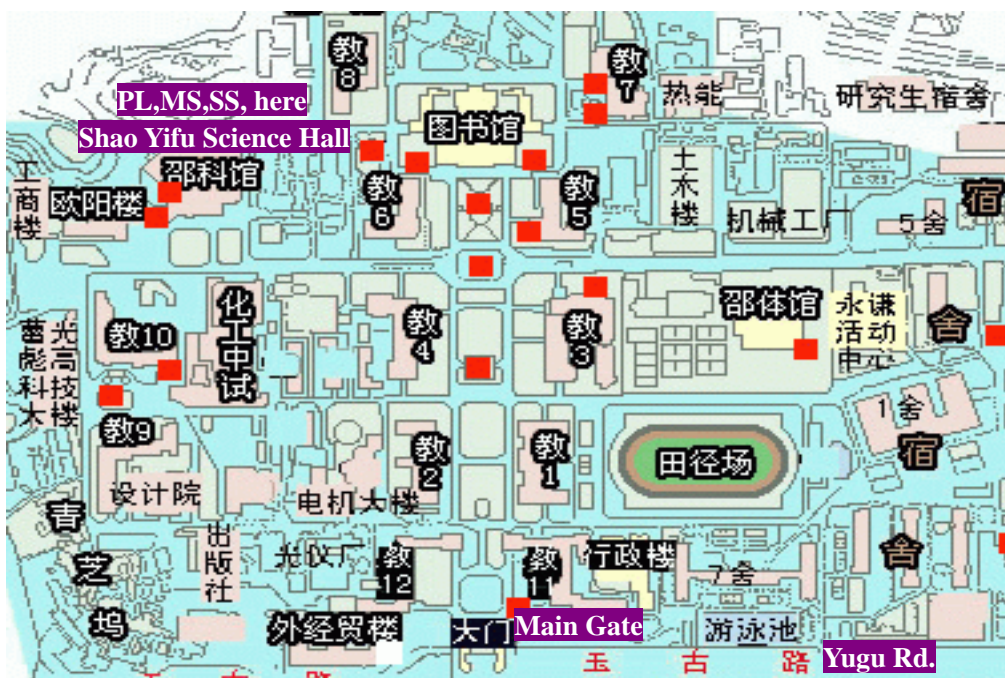
### **Special Session Abbreviations and Index:**

- |  |  |
|--|--|
| <b>SS-1:</b> Chaos and Fractals                | <b>SS-7:</b> Economics and finance                           |
| <b>SS-2:</b> Bifurcation                       | <b>SS-8:</b> Bio-medical engineering                         |
| <b>SS-3:</b> Solitons                          | <b>SS-9:</b> Information science<br>and technology           |
| <b>SS-4:</b> Nonlinear time<br>series analysis | <b>SS-10:</b> Application to physical<br>sciences and others |
| <b>SS-5:</b> Complexity and<br>complex systems | <b>SS-11:</b> Others   |
| <b>SS-6:</b> Nonlinear brain dynamics          |  |

## Fudan University, Shanghai



## Zhejiang University, Hangzhou



## II. TECHNICAL PROGRAM

**June 7**

**Morning, June 7**

### **Opening Ceremony**

**8:30 - 8:45, June 7, Rm1**

Chairperson: Guangrong Chen, Zhewei Zhou

8:30 - 8:37

Opening Remarks

Shiqian Dai

8:37 - 8:45

Welcoming Remarks

Vice president of Fudan University

### **Plenary Talk I**

**8:45 - 10:45, June 7, Rm. 1**

Chairperson: Shiqiang Dai, Andreas Dress

8:45 - 9:25

**Coordinative Control of Multi-Agent Networks**

Guanrong Chen (Hong Kong, China)

9:25 - 10:05

**ANHARMONICITY AND SOLITON-MEDIATED TRANSPORT**

Manuel G. VELARDE (Spain)

10:05 - 10:45

**Incompressible fluid flow with slip boundary conditions and its stability**

Benyu Guo (China)

**10:45 - 11:00 Coffee Break**

### **Plenary Talk II**

**11:00 - 13:00, June 7, Rm. 1**

Chairperson: Manuel G. VELARDE, B. Larry Li

11:00 - 11:40

**Canonical Decomposition of Finite Metric Spaces and its Application in Analyzing Branching Processes**

Andreas Dress (Germany and China)

11:40 - 12:20

**Towards a science of ecological complexity for studying sustainability**

B. Larry Li (USA) 088

12:20 - 13:00

**Fractals for electronic design**

Maciej J. Ogorzalek (Poland) 091

**Afternoon, June 7**

**SS-1-1**

***Chaos and Fractals (I)***

***14:30 - 16:30, June 7, Rm2***

*Chairperson: Jiong Ruan, Guoguang He*

14:30 - 14:50

**Ragged synchronizability of coupled oscillators**

A. Stefanski, P. Perlikowski and T. Kapitaniak (Poland) 006

14:50 - 15:10

**Chaos control in a neural network with parameter modulation**

Guoguang He, Manish Dev Shrimali, Luonan Chen, Kazuyoki Aihara (Japan) 066

15:10 - 15:30

**Synchronization of chaotic systems using time-delayed fuzzy state-feedback controller**

H.K. Lam, W.K. Ling, H.H.C. Iu and S.H. Ling (UK and Australia) 078

15:30 - 15:50

**Chaotic effects in light-induced atomic transport**

Victor Argonov (Russia) 025

15:50 - 16:10

**Fractional behavior in Hamiltonian Chaos Describing Reactions**

Akira Shojiguchi, Chun-Biu Li, Tamiki Komatsuzaki, Mikito Toda (Japan) 063

16:10 - 16:30

**Experimental evidence of phase-flip bifurcation in two delay coupled Chua oscillators**

Syamal Kumar Dana, Juergen Kurths, Ramkrishna Ramaswamy, Awadhesh Prasad (India and Germany) 018

**SS-5**

***Complexity and complex systems***

***14:30 - 16:30, June 7, Rm 3***

*Chairperson: Agnes Buka, Bing-Hong Wang*

14:30 - 14:50

**PLANNING IN COMPLEXITY**

Jonathan Carrillo-García, Gerardo Burkle-Elizondo (Mexico) 016

14:50 - 15:10

**Evolutionary games on complex network**

Bing-Hong Wang and Wen-Xu Wang (China) 056

15:10 - 15:30

**Temperature Oscillations in a Compartmentalized Bi-disperse Granular Gas**

M. Hou, Pik-Yin Lai, C.K. Chan (Taiwan, China) 086

15:30 - 15:50

**Flexoelectricity and electroconvection in a banana nematic**

Nándor Éber, Antal Jákli, John Harden, Jim Gleeson, David Wiant, Samuel Sprunt, Katalin Fodor-Csorba, Tibor Tóth Katona, Ágnes Buka (Hungary and USA) 051

15:50 - 16:10

**Electroconvection in a sheared nematic liquid crystal**

Nándor Éber, Ömer Polat: omerpolat@hotmail.com, Ágnes Buka (Hungary and Turkey) 052

16:10 - 16:30

**Anisotropic and isotropic electroconvection**

A Buka, N Eber, W Pesch and L Kramer (Hungary and Germany) 057

16:30 - 16:50

**Scale-free networks by superlinear preference attachment rule**

Liang Wu, Shiqun Zhu (China) 067

## **MS-2**

### ***Oscillations and Complex Dynamics in Biological Systems***

*Organizer: Albert Goldbeter (Université Libre de Bruxelles, Belgium)*

**14:30 - 16:30, June 7, Rm4**

*Chairperson: Albert Goldbeter, Shigeru Kondo*

14:30 - 15:00

**Modeling circadian rhythms : From molecular mechanism to physiological disorders**

Albert Goldbeter (Belgium) 106

15:00 - 15:35

**Robust synchrony and rhythmogenesis in endocrine neurons via autocrine regulation**

Yue-Xian Li (Canada) 104

15:35 - 16:10

**Nonlinear dynamics in biological pattern formation: Interactions between pigment cells give rise to Turing patterns in zebrafish.**

Shigeru Kondo (Japan) 103

16:10 - 16:30

**A mesoscopic stochastic dynamics of intercellular calcium oscillations**

Chun-lian Zhu, Ya Jia, Quan Liu, Li-jian Yang, Xuan Zhan (China) 097

## **16:30 - 16: 45 Coffee Break**

**SS-1-2**

***Chaos and Fractals (II)***

**16:45 - 18:00, June 7, Rm2**

*Chairperson: Jiong Ruan, Guoguang He*

16:45 - 17:05

**The Dynamical Origin of Chemical Reactions: How and Why Systems can React from One State to the Other**

Chun Biu Li, Akira Shojiguchi, Mikito Toda, and Tamiki Komatsuzaki (Japan) 074

17:05 - 17:25

**Convergence of Trajectories in Fractal Interpolation of Stochastic Processes**

Robert Małysz (Poland) 065

## June 8

### Morning, June 8

#### MS-3

#### ***Nonlinear Differential Equations and Applications in Physics and Engineering***

*Organizer: Zhaosheng Feng (University of Texas-Pan American, USA)  
David Y. Gao (Virginia Tech. University, USA)*

#### MS-3-1

#### ***Nonlinear Differential Equations and Applications in Physics and Engineering (I)***

**8:15 - 10:15, June 8, Rm2**

*Chairperson: Zhaosheng Feng, David Y. Gao*

8:15 - 8:25

##### **Introduction**

Zhaosheng Feng

8:25 - 8:55

##### **Dynamics analysis and transition mechanism of bursting calcium oscillations in non-excitable cells**

Feng Zhang and Qi-Shao Lu (China) 019

8:55 - 9:25

##### **A time-independent approach for computing wave functions of the Schrodinger-Poisson system**

C.-S. Chien, B.-W. Jeng and Z.-C. Li (Taiwan, China) 033

9:25 - 9:55

##### **Existence and global attractivity of positive periodic solution in Lotka-Volterra competition systems with deviating arguments**

Xingfu Zou (Canada) 069

9:55 - 10:15

##### **Smooth shock profiles for hyperbolic balance laws**

Wen-An Yong (Tsinghua University, Beijing) 058

## **SS-2**

### ***Bifurcation***

**8:15 - 10:15, June 8, Rm3**

*Chairperson: Deming Zhu, Krzysztof Stefanski*

8:15 - 8:35

#### **COMPUTING WAVE FUNCTIONS OF NONLINEAR SCHRÖDINGER EQUATIONS: A TIME-INDEPENDENT APPROACH**

S.-L. Chang, C.-S. Chien, B.-W. Jeng (Taiwan, China) 017

8:35 - 8:55

#### **An algorithm for ordering superstable periodic orbits and extracting their symbolic codes**

Krzysztof Stefanski (Poland) 023

8:55 - 9:15

#### **Invariant Manifolds of Periodic Parametric Dynamical Systems**

Bruno ROSSETTO and Jean-Marc GINOUX (France) 049

9:15 - 9:35

#### **Codimension 3 Double Homoclinic Loops Bifurcations with Resonant Eigenvalues**

Weipeng Zhang Deming Zhu Dan Liu (China) 061

9:35 - 9:55

#### **Dynamical traps and chaotic transport in meandering jets**

M.V. Budyansky, M.Yu. Uleysky, S.V. Prants (Russia) 036

## **SS-9**

### ***Information science and technology***

**8:15 -10:15, June 8, Rm4**

*Chairperson: Chi K. Tse, Guoqing Gu*

8:15 - 8:35

#### **A Clustering Algorithm for Sensor Networks Based on Bee Colony Structure**

Chi-Tsun Cheng, Chi K. Tse and Francis C.M. Lau (Hong Kong, China) 015

8:35 - 8:55

#### **TSUNAMI DETECTION & EARLY WARNING by TIR REMOTE SENSING**

K. Na Nakornphanom , Frank C. Lin and C. Lursinsap (Thailand, USA) 003

8:55 - 9:15

#### **Error performance of short-block-length LDPC codes built on scale-free networks**

Xia Zheng, Francis C. M. Lau and Chi K. Tse (Hong Kong, China) 022

9:15 - 9:35

#### **Boundedness of weighted coefficients of perceptron learning algorithm and global convergence of fixed point and limit cycle behaviors**

Charlotte Yuk-Fan Ho, Bingo Wing-Kuen Ling, and Hak-Kueng Lam (UK) 071

## **SS-7**

### ***Economics and finance***

**8:15 - 10:15, June 8, Rm5**

*Chairperson: C. Tebaldi, J. Yong*

8:15 - 8:35

#### **The multi-community bipartite producer-consumer network with trade barrier**

H. Fan, K. Aihara (Japan) 008

8:35 - 8:55

#### **Reduction Properties in Competitive Logistic Networks with Adaptation**

C. Tebaldi (Italy) 083

8:55 - 9:15

#### **Sequences of Cycles and Transitions to Chaos in a Modified Goodwin's Growth Cycle Model**

Claudio Tebaldi (Italy) 084

9:15 - 9:35

#### **Irrational Polynomial Logistic Regression for Risk Prediction**

ZHUANG Jian, QIAO Zeng (China) 096

## **10:15 - 10:30 Coffee Break**

## **MS-3**

### ***Nonlinear Differential Equations and Applications in Physics and Engineering***

*Organizer: Zhaosheng Feng (University of Texas-Pan American, USA)*

*David Y. Gao (Virginia Tech. University, USA)*

## **MS-3-2**

### ***Nonlinear Differential Equations and Applications in Physics and Engineering (II)***

**10:30 - 12:30, June 8, Rm2**

*Chairperson: Zhaosheng Feng, David Y. Gao*

10:30 - 10:50

#### **Traveling waves for a system of nonlocal evolutions equations**

Fengxin Chen (USA) 098

10:50 - 11:10

#### **An alternative description of two-dimensional shallow water waves**

Ping Liu and Sen-Yue Lou (China) 053

11:10 - 11:30

#### **Dual feedback control against chaos in nonconvex dynamics**

David Y. Gao (USA) 060

11:30 - 11:50

**Double hopf bifurcation for van der Pol-Duffing oscillator with parametric delay feedback control**

Suqi Ma, Qishao Lu and Z. Feng (China & USA) 026

11:50 - 12:10

**An operator splitting method for the Degasperis-Procesi equation**

Baofeng Feng (USA) 050

12:10 - 12:30

**Stability of periodic solution of nonlinear scalar newtonian equations**

Jinzhì Lei, Xiong Li, Pedro J. Torres, Meirong Zhang (China) 010

**SS-10**

***Applications to physical sciences and others***

**10:30 - 12:30, June 8, Rm3**

*Chairperson: Haiping Fang, Chiming Yang*

10:30 - 10:50

**An Efficient Baptista-type Chaotic Cryptographic Scheme**

Kwok-Wo WONG, Wing-Shing LAW, and Bernie Sin-Hung KWOK (Hong Kong, China) 059

10:50 - 11:10

**Test system based on virtual machine platform and Omnipotent Materials Testing Instrument**

Zhelin Zhu, Yilei Zhu(China)111

11:10 - 11:30

**Kantorovich-Ritz Hybrid Method and Its Applications**

LIU Gao-Lian , SONG Xue-Yu , LI Fan-Chun (China) 090

11:30 - 11:50

**Self-induced spontaneous transport of water molecules through a symmetrical nanochannel by ratchetlike mechanism**

Rongzheng Wan , Hangjun Lu , Jinyuan Li , Jingdong Bao , Jun Hu, and Haiping Fang (China) 064

11:50 - 12:10

**The chemistry of life's origin and gene's evolution**

Chi Ming Yang (Nankai University, China) 002

**SS-3**

***Solitons***

**10:30 - 12:30, June 8, Rm4**

*Chairperson: Guoxiang Huang, E. del Rio*

10:30 - 10:50

**Soliton ratchet in a 1D anharmonic transport line**

E. del Río (Spain) 041

10:50 - 11:10

**Soliton dynamics in hydrogen-bonded solids systems**

Cheng Yuan-Fa huang liang Zhang chen (China) 013

11:10 - 11:30

**Ultraslow optical solitons via electromagnetically induced transparency**

Guoxiang Huang (China) 037

11:30 - 11:50

**A Brief Survey on Constructing Homoclinic Structures of Soliton Equations**

Ranchao Wu (China) 009

11:50 - 12:10

**Motion of multi-solitons, and its breakup threshold in a finite one dimensional Hydrogen-bonded system**

A.S. Tchakoutio Nguetcho and T. C. Kofané (Cameroun) 001

12:10 - 12:30

**The undular hydraulic jump – analytical and numerical investigations of the free boundary value problem**

Richard Jurisits, Wilhelm Schneider and Yee Seok Bae (Austria and Korea)014

**MS-8**

***Financial Mathematics***

*Organizer: Shanjian Tang*

**10:30 - 12:30, June 8, Rm5**

*Chairperson: Jionmin Yong, Shanjian Tang*

10:30 - 11:00

**A linear quadratic optimal control problem with nonlinear expectation**

Jiongmin Yong (China) 101

11:00 - 11:30

**Switching games of stochastic differential systems**

Shanjian Tang (China) 105

11:30 - 12:00

**Nonlinear expectations and nonlinear pricing**

Zengjing Chen, Kun He and Reg Kulperger (China and Canada) 100

## **Afternoon, June 8**

### **MS-3**

#### ***Nonlinear Differential Equations and Applications in Physics and Engineering***

*Organizer: Zhaosheng Feng (University of Texas-Pan American, USA)*

*David Y. Gao (Virginia Tech. University, USA)*

### **MS-3-3**

#### ***Nonlinear Differential Equations and Applications in Physics and Engineering (III)***

**14:00 - 16:20, June 8, Rm2**

*Chairperson: Zhaosheng Feng, David Y. Gao*

14:00 - 14:20

**Chaotic synchronization via periodically intermittent control**

Tingwen Huang (Qatar) 072

14:20 - 14:40

**Bayesian unified hierarchical model for classification of curve data**

Xiaohui Wang (USA) 077

14:40 - 15:00

**A general approach to get series solutions of strongly nonlinear differential equations**

Shi-Jun Liao, (China) 087

15:00 - 15:20

**Green function of nonlinear degenerate elliptic operators and application to regularity**

Shenzhou Zheng (China) 054

15:20 - 15:40

**A method of constructing a database-free optimal dynamical system and the global optimal dynamical system**

Chui-Jie Wu and Liang Wang (China) 031

15:40 - 16:00

**A note about the non-rectifiable cracks in elastic plane**

Hua Liu (China) 089

16:00 - 16:20

**Fisher equation and applications in population dynamics**

Zhaosheng Feng (USA) 068

## **SS-4**

### ***Nonlinear time series analysis***

**14:00 - 16:00, Rm3**

*Chairperson: Jiong Ruan*

14:00 - 14:20

#### **A local subspace method to reduce colored noise for chaotic time series**

Junfeng Sun (Hong Kong, China) 012

14:20 - 14:40

#### **Extracting Protein Conformational Dynamics on a Photon-by-Photon Basis in Single Molecule Experiments**

Chun-Biu Li, Tamiki Komatsuzaki (Japan) 081

14:40 - 15:00

#### **Anomalous Diffusion in Folding Dynamics of Minimalist Protein Landscape**

Yasuhiro Matsunaga, Chun-Biu Li, Tamiki Komatsuzaki (Japan)082

## **MS-6**

### ***Entanglement and Phylogenetics - A Strange Coincidence of Methods Developed in very Different Contexts OR Network Alignment: What, Why, and How?***

*Organizer: Andreas Dress (CAS-MPG PICB, China)*

**14:00 - 16:00, June 8, Rm4**

*Chairperson: Andreas Dress*

14:00 - 14:30

#### **Markov invariants for phylogenetic reconstruction**

Peter D Jarvis (Australia) 092

14:30 - 15:00

#### **Mixed two-qubit system and the structure of its ring of local invariants**

Peter D Jarvis (Australia) 093

15:00 - 15:30

#### **Nonlinearities in Genome Evolution**

Michael Laessig (Germany) 110

## **SS-11**

### ***Others***

**14:00 - 16:00, June 8, Rm5**

*Chairperson: Maoan Han, Guoqing Gu*

14:00 - 14:20

#### **A Formulation for Incentives**

Qing Fu, Meijin Wang and Zeke Wang (China) 102

14:20 - 14:40

**Limit cycles near Homoclinic and heteroclinic loops**

Maoan Han, Junmin Yang, Alina Tarta (China) 108

14:40 - 15:00

**Intelligent Integrated Platform System of Railway Passenger Transport Station**

Jianmin Cui (China) 109

15:00 - 15:20

**Effects of spy in the minority game**

Guoqing Gu (China) 062

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

## **June 9**

### **Morning, June 9**

#### **Opening Ceremony of IWNBD'07**

**8:30 - 8:45, June 9, Rm6**

Chairperson: Xiaowei Tang

Opening remarks

Guang Li

Welcoming remarks

Luping Fang

#### **Keynote Talk III**

**8:45 - 10:45, June 9, Rm6**

Chairperson: Walter J. Freeman, Hans Liljenstrom

8:45 - 9:25

##### **Optimizing synchronization in complex modular networks**

Ying-Cheng Lai (USA) 076

9:25 - 10:05

##### **Modelling of Nonlinear Dynamics in Prostate Cancer and its Application**

Kazuyuki Aihara (Japan) 079

10:05 - 10:45

##### **Nonlinear dynamics of cellular rhythms**

Goldbeter (Belgium) 107

#### **10:45 - 11:00 Coffee Break**

#### **Keynote Talk IV**

**11:00 - 12:20, June 9, Rm6**

Chairperson: Goldbeter, K. Aihara

11:00 - 11:40

##### **A noisy 'shutter' intrinsic to the spontaneous output of K-sets provides a trigger for cinematographic frames in perception**

Walter Freeman (UC Berkeley, USA) 021

11:40 - 12:20

**Biological Network Dynamics and Inter-scale Interactions**

Hans Liljenström, (SLU, Sweden) 004

12:20 - 13:00

**Analysis of EEG after Acupuncture Using a Chaotic Olfactory Model**

Guang Li,\* Meng Hu, and Walter J. Freeman (China,USA) 032

**Afternoon, June 9**

**SS-6**

***Nonlinear brain dynamics***

**14:00 - 17:20, June 9, Rm7**

*Chairperson: Walter J. Freeman, Guang Li*

14:00 - 14:20

**KIII Model and Its Application on Iris Recognition**

Jin Zhang, Guang Li and Walter J. Freeman (China, USA) 029

14:20 - 14:40

**Olfactory Model to Pattern Recognition**

Eduardo G. Moreira, Guang Li, Yusely G. Ruiz and Jin Zhang (Cuba, China) 035

14:40 - 15:00

**A thermodynamic model of the olfactory system operating far from equilibrium in perception.**

Walter J. Freeman (USA) 099

15:00 - 15:20

**Chaotic synchronization of two nonlinear coupling Hindmarsh-Rose neurons**

Fang Xiao-ling, Yu Hong-jie, Jiang Zong-lai (China) 020

15:20 - 15:40

**Bursting Regions for the Morris-Lecar Neuronal Model with Current-Feedback**

Lixia Duan, Qishao Lu (China) 027

15:40 - 16:00

**Dynamics Analysis on Neural Firing Patterns by Symbolic Approach**

Zhi-Ying Gao, Qi-Shao Lu (China) 030

16:00 - 16:20

**Dynamics about neural array with lateral inhibitory connections**

ZHUANG Jian, QIAO Zeng (China) 095

16:20 - 16:40

**Bursting in Neuronal Network: a mean-field model**

Y.S. Chou, Pik-Yin Lai, C.K. Chan (Taiwan, China) 028

## **MS-7**

### ***Collective Behaviors in Complex Networks***

**14:00 - 16:20, June 9, Rm8**

*Chairperson: Choy Heng Lai, Xingang Wang*

14:00- 14:20

#### **Condensation on weighted networks**

Zonghua Liu (China) 042

14:20 - 14:40

#### **Collective and spatial sorting in multi-agent system**

Wen Yang and Xiaofan Wang (China) 043

14:40 - 15:00

#### **Symmetries Embedded in Spectra of Complex Networks**

Huijie Yang (Singapore and China) 044

15:00 - 15:20

#### **Unstationary pattern formation in complex networks**

Xingang Wang and Choy-Heng Lai (Singapore) 045

15:20 - 15:40

#### **Statistical analysis of synchronizability of complex networks**

Shuguang Guan and Choy-Heng Lai (Singapore) 046

15:40 - 16:00

#### **Adaptive-Impulsive Synchronization of Uncertain Complex Dynamical Networks**

Li Kun and Choy-Heng Lai (Singapore) 047

16:00 - 16:20

#### **On local stability of the synchronous state of delay-coupled chaotic maps on random network**

Xiaofeng Gong and Choy-Heng Lai (Singapore) 048

## **SS-8**

### ***Bio-medical engineering***

**14:00 - 16:40**

*Chairperson: Frank Lin, Wei Lin*

14:00 - 14:20

#### **A Mathematical Model of Cancer Radiovirotherapy**

Youshan Tao (China) 007

14:20 - 14:40

#### **Adaptive a Statistical Transmission Model of Avian Influenza for Outbreak Prediction in Human**

Prapaphan Prawing and Anongnart Srivihok (Thailand) 034

14:40 - 15:00

**Multifractal Analysis of ECG Signal**

Ning Xinbao, Wang Jun, Chen Ying, Bian Chunhua (China) 038

15:00 - 15:20

**Nonlinear Analysis of Heart Rate Variability Signal**

Bian Chunhua, Huang Xiaolin, Ning Xinbao, Li Jin (China) 039

15:20 - 15:40

**Diagnosis of Children with ADD/ADHD using a Recurrent Hopfield Net**

Lakesha L. Ruffin, Frank C. Lin, Worawat Choensawat, Worapat Prireekreng, Kingkarn Sookhanaphibarn (USA, Thailand) 040

15:40 - 16:00

**Initiation and dose concentration of HIV control**

Charlotte Yuk-Fan Ho, Bingo Wing-Kuen Ling, and Hak-Kueng Lam (UK) 070

16:00 - 16:20

**A Quenching-Simulated Annealing Algorithm for the Protein Folding Problem**

Juan Frausto-Solis, Ernesto Liñán-García (Maxico) 085

16:20 - 16:40

**Effects of quarantine in small-world epidemics**

Liu Maoxing, Ruan Jiong, Lin Wei (China) 094

16:40 - 17:00

**Global attractors and invariant measures for non-invertible planar piecewise isometric maps**

Xin-Chu Fu and Jinqiao Duan (China, USA) 024

## **INFORMATION ON TECHNICAL SESSIONS**

### **INFORMATION FOR SESSION CHAIRS**

The chair of each session is expected to arrive at the session room 10 minutes before the session begins, and to check the attendance of speakers in the session. In case some speaker is absent, please do not change the schedule, so that the audience can listen to the talk s/he is interested in according to the original schedule.

### **INFORMATION FOR SPEAKERS**

Please keep your presentation within the time allocated in the program. All speakers are requested to report their attendance to the session chair at least five minutes before the session starts.

To guarantee your presentation goes smoothly, please contact the person at the reception desk to store your lecture ppt file in the conference computer when you arrive at the venue to register. Your file will be deleted after your presentation, and we guarantee that no copy will be made for other use. If your file is too big, or you don't want your file copied into other's computer, please also contact the person in the reception desk to check if your computer can be linked to our digital projector and works in advance.

If you need any equipment other than digital projector, such as over-head projector, slide projector and so on so forth, please do tell us in advance, so that we can prepare the necessary equipments for you.

### **III. CONFERENCE INFORMATION**

#### **REGISTRATION**

**All the participants will register at Fudan University, Shanghai (220 Handan Road, Shanghai) on June 6 - 8, 2007.**

The registration desk will be open at the Lobby of Qingyun Building, Fudan University on June 6 and at a room, which will be announced later, after June 6.

June 6 (Wed.), 08:30 – 19:00

June 7 (Thu.) 08:30 – 17:00

June 8 (Fri.) 08:30 – 17:00

June 9 (Sat.) 08:30 – 17:00 at the lobby of Shao Yifu Science Hall of Zhejiang University

If you have completed the advance registration process, your conference material awaits your pickup at the Conference Registration Desk.

#### **REGISTRATION FEE**

The registration fee is US\$480 for regular participants before the deadline (April 15, 2005), which includes a copy of abstract book, gift, reception, coffee break, daily meals, banquet, and one day tour at Hangzhou and the transportation between Shanghai and Hangzhou.

The registration fee for students is US\$280 before the deadline, which includes a copy of abstract book, gift, reception, coffee break, daily meals, and the transportation between Shanghai and Hangzhou. A photocopy of student ID card should be presented when registers. Students are charged extra US\$120 for banquet and the tour. For all the payments after the deadline, an extra pay of US\$50 is needed.

Any accompanied family member should pay US\$180 for reception, daily meals, and transportation between Shanghai and Hangzhou before the deadline (US\$230 after the deadline) if they want to participate in these activities. Additional US\$120 for the banquet and the tour at Hangzhou is needed if they wish.

#### **MEANS OF PAYMENT**

All payment including registration, accommodation, and excursions should be made in US dollars or equivalent Euro or Japanese Yen (except for the participants from the mainland of China, an additional announcement will be given a little later) by one of the following means:

##### **(I) BANK TRANSFER**

Account Number: 1001221009008935253

Account Name: Shanghai Society of Biophysics

Bank: The Industrial and Commercial Bank of China, Shanghai Branch, Xu-Hui District Sub-branch, International Department, 022210-Huai-Hai-Zhong-Lu Division, Shanghai, CHINA

Attn: Prof. Shi Yong-De, Co-Chair of Shanghai NSA'07

Swift address of the bank: ICBKCNBJSHI

**(II) BANK DRAFT OR CHECK**

To: Prof. Shi Yong-De, Co-Chair of Shanghai NSA'07  
Secretary General, the Shanghai Society of Biophysics  
Department of Biophysics  
Medical College, Fudan University  
Yi-Xue-Yuan Road 138, Shanghai 200032, CHINA

Note: The above underlined words must be written on your draft or check. In case your bank charges you some money from the amount you send to us, we are sorry that you have to pay it at the registration back.

**(III) CASH OR CREDIT CARD**

Directly pay the fees at the Shanghai NSA registration desk, during registration time, June 6-9, 2007.

**CANCELLATION & REFUND**

Any cancellation must be notified to the secretariat and the Co-chairs of Shanghai NSA'07 for a refund of the registration fee.

Received by March 31, 2007, 80% Refund

Received until April 30, 2007, 50% Refund

Received after May 1, 2007, No Refund

You are encouraged to register for the symposium as soon as possible. For advance registration, please complete the Registration Form and return it to the financial secretary with the appropriate fees at your earliest convenience but no later than April 30, 2007. Personal Check is only accepted before April 30, 2007.

**RECEIPT OF REGISTRATION**

Please contact the financial secretary by E-mail when you pay, and you will get information in time. A formal receipt will be distributed at the registration desk with the registration packets during the conference.

**CERTIFICATE OF ATTENDANCE**

If you require a Certificate of Attendance, please contact the Co-chairs of Shanghai NSA'07.

## ACCOMMODATION

### **Shanghai**

QinYun Building (Zheng Da Development and Management Center) is a guest house of Fudan University. It is located in the main campus of Fudan University, which is very near to the venue. The price for a Standard Room (double room or twin room) is USD50 per night (including breakfast). The conference will provide the participants with a special rate for rooms, discounted only for the conference. All the payment should be paid to the financial co-chair of Shanghai NSA'07. The hotel will not accept your payment directly with this discounted amount.

### **Hangzhou**

You will stay in Jinhui Hotel (73 Moganshan road) in Hangzhou, which is not very far from the venue (Shao Yifu Science Hall, Zhejiang University). There will be conference bus service between the hotel and the venue). The price is USD50 per night..

## VENUE

Guanghua Towers is the main building within the main campus of Fudan University, which is located at the northeast part of Shanghai city. Shao Yifu Science Hall is the main building within the main campus of Zhejiang University, which is not far from the famous west lake.

### **About the City of Shanghai & Hangzhou**

**Shanghai** is the biggest city in China, and a harmonic mixture of the traditional and the modern, the east and the west. Shanghai has completely changed in the last decade. The great metropolis of SHANGHAI is currently undergoing one of the fastest economic expansions that the world has ever seen. While shops overflow and the skyline fills with skyscrapers, Shanghai now seems certain to recapture its position as East Asia's leading business city, a status it last held before World War II. Visiting and touring Shanghai are truly enjoyable for many.

**Hangzhou**, located on the lower reaches of the Qiantang River in southeast China, is a beautiful resort only 180 kilometers to Shanghai. Once applauded as "the most splendid and luxurious city in the world" by Marco Polo, the Italian traveler in the 13th century, Hangzhou is still one of China's most important tourist venues with its famous natural beauty and cultural heritages today. The West Lake is undoubtedly the most renowned feature of Hangzhou, noted for the scenic beauty that blends naturally with many famous historical and cultural sites. In this scenic area, Solitary Hill, the Mausoleum of General Yue Fei, the Six Harmonies Pagoda, and the Ling Yin Temple are probably the most frequently visited attractions. The "Ten West Lake Prospects" have been specially selected to give the visitor outstanding views of the lake, mountains and monuments. A number of national museums, such as the National Silk Museum and Tea Museum, can be found in Hangzhou and are representative of Chinese culture.

One of the most important parts of traveling is to taste the local delicacies. Hangzhou dishes are noted for their elaborate preparation, sophisticated cooking and refreshing taste. We will have our banquet in Louwailou Restaurant, which is the most well-known restaurant in Hangzhou. Many leaders from a variety of countries had meals there so that you can still find out their pictures in the menu. The shopping environment in Hangzhou is exciting and convenient. Silk products and green tea are most famous.

## **SOCIAL EVENTS**

All registrants are invited to attend the following social programs (students and accompany persons have to pay additional fees for participate in the banquet and tour). We hope these programs will offer a good opportunity to promote friendships with colleagues from around the world.

### **WELCOMING RECEPTION**

Date & Time: June 6, 19:00 – 21:00  
Place: Dining Hall, Qingyun Building, Fudan University

### **HANGZHOU CITY TOUR**

Date & Time: June 10, 7:00am - 18:00pm  
Place: Hangzhou  
Transportation: Conference bus  
The conference bus will leave your hotel at 7:00 am.

In the morning, we will visit the famous Lingyin temple and in the afternoon we will boat on the beautiful West Lake and visit some islands.

### **BANQUET**

Date & Time: June 9, 19:00 – 21:00  
Place: Lou Wai Lou Restaurant  
Transportation: Conference bus

Lou Wai Lou Restaurant is a Chinese Traditional Restaurant located at the bank of West Lake, which is one of the most famous restaurants in Hangzhou. The dishes are in the typical Hangzhou cuisine. Many leaders all over the world have had meal there. So you can taste what kind of food the presidents, kings, queens and the first ladies have had!

## **MEALS**

Free lunches from June 7 to 10 and free supper from June 6 to 10 (except for the days having reception or banquet) will be provided to all regular registrants. You will have your breakfast in the hotel where you stay

## TRANSPORTATION

### **PUDONG International Airport (PVG) and HONGQIAO International Airport (SHA)**

Shanghai is the only city in China, which has two airports – Pudong International Airport (PVG) and Hongqiao International Airport (SHA, only for domestic flight now. However, if your flight transfers in some Chinese city, such as Beijing, then you may land at this airport). Please pay attention to which airport your plane will land. Most major international airlines maintain regular flight services between Shanghai and other major cities of the world.

### **HOW TO REACH THE VENUE**

If you arrive at Shanghai before the afternoon on June 8th, then go to Qingyun Building, Fudan University (220 Handan Road, Shanghai) first.

**From Hongqiao Airport:** take a taxi (about 60 minutes), the price is about RMB 80 Yuan.

**From Pudong Airport:** (1) take a taxi (about 45 minutes), the price is about RMB 140 Yuan;  
(2) take bus Airport line 4, from Pudong Airport to WU JIAO CHANG stop, the price is about RMB 16 Yuan; then take a taxi to Fudan University, the price is about RMB 11 Yuan.

If a taxi driver does not use distance meter or you find the price is too high, you can refuse to pay or write down the car number and the name of the company. After complaining to the company, they will return you money. The taxi company we recommend is “DA ZHONG”, “CHIANG SHENG”, “JING JIANG”. After paying, please ask for a receipt, on which you can contact the company by the address and telephone number if you have any problem after your leaving.

Participants can take conference buses to Hangzhou in the evening on June 8. Participants can also take conference buses back to Shanghai in the late evening of June 10. If anyone wants to leave earlier, no conference bus service is available.

### **HOW TO REACH THE HOTEL IN HANGZHOU DIRECTLY**

The Hotel you will stay in Hangzhou is Jinhui Hotel (23, Moganshan Road, Hangzhou). The venue in Hangzhou is Shao Yifu Science Hall, Zhejiang University (38 Zheda Road, Hangzhou).

**You can go to Jinhui Hotel, Hangzhou by the way of**

**(A). Shanghai Pudong International Airport → Jin Hui Hotel**

**Route 1 (economic way):**

Shanghai Pudong International Airport → Hangzhou Huang-Long Tourist Center → Jin Hui Hotel

Step 1: Walk to the park lot exit of Pudong International Airport

Step 2: Take the Hangzhou-Shanghai Air Bus to Hangzhou Huang-Long Tourist Center  
about 3.5 hours

Departure Time: 10:30, 12:00, 13:30, 15:30, 17:30, 19:30

Price: 100 Yuan per person

Step 3: Take a Taxi to Jin Hui Hotel, 73 Mo Gan Shan Road, Hangzhou

Price: about 20 Yuan according to the Taxi meter

**Route 2:**

Shanghai Pudong International Airport → Jin Hui Hotel

By taxi about 1100 Yuan per Taxi

**(B). Hangzhou Xiaoshan International Airport → Jin Hui Hotel**

**Route 1 (economic way):**

Hangzhou Xiaoshan International Airport → Hangzhou Wu Lin Men → Jin Hui Hotel

Step 1: Walk to the Air Bus Station and buy a ticket to Hangzhou downtown

Price: 15 Yuan per person

Step 2: Take the Air Bus to Wu Lin Men, which is the last stop

Step 3: Take a Taxi to Jin Hui Hotel, 73 Mo Gan Shan Road, Hangzhou

Price: about 10 Yuan according to the Taxi meter

**Route 2:**

Take a taxi directly to Jin Hui Hotel, 73 Mo Gan Shan Road, Hangzhou

Price: about 120 Yuan per Taxi

**(C). Hangzhou Railway Station → Jin Hui Hotel, 73 Mo Gan Shan Road, Hangzhou**

Take a taxi

Price: about 25 Yuan according to the Taxi meter

**If you don't want to stay in Shanghai at the night on June 10 and wish to leave China earlier, then you can take the following ways:**

**(A). Hangzhou → Shanghai Pudong International Airport**

**Route 1 (economic way):**

Shanghai Pudong International Airport → Hangzhou Huang-Long Tourist Center → Jin Hui Hotel

Step1: Take a Taxi to Hangzhou Huang-Long Tourist Center

Price varies dependent on where you are from, normally no more than 30 Yuan within Hangzhou (Taxi price is 2 Yuan per kilometer).

Step2: Take the Hangzhou-Shanghai Air Bus from Hangzhou Huang-Long Tourist Center to Shanghai Pudong International Airport about 3.5 hours

Departure Time: 7:00, 8:30, 10:30, 12:30, 14:30, 16:00

Price: 100 Yuan per person

**Route 2:**

Take a taxi directly to Shanghai Pudong International Airport

Price: about 1100 Yuan per Taxi

## **GENERAL INFORMATION**

### **MESSAGE BOARD**

Any announcement on the changes in the conference schedule will be posted on a message board located by the SHANGHAI NSA'05 Registration Area. Be sure to occasionally check the message board, if you are expecting messages.

### **CONFERENCE WEB SITE**

SHANGHAI NSA'05 website at <http://www.ssbiophysics.com.cn/> or <http://www.sss-nonlinear.org/webs/gjhy.htm> has maintained an up-to date information on technical programs, transportation, conference registration, hotel reservation, tours, and other services. Please visit our conference web site often.

### **CURRENCY**

The Chinese currency use a decimal system. Notes come in denominations of RMB100, 50, 20, 10, 5, 2, 1 Yuan and coins 1, 5 Jiao and 1 Yuan. Banks are open from 9:00am to 12:00a.m. and 1:00pm-4:00 pm during Monday - Saturday. Traveler's checks in foreign currencies will be cashed by banks and hotels but are not usually accepted in shops. The exchange rate is subject to market fluctuations. One U.S. dollar was equivalent to about RMB 7.7 Yuan.

### **CREDIT CARDS**

Credit cards, including VISA, American Express, Diners Club, Master Card, and JCB, are accepted at major hotels, department stores, and the larger restaurants.

### **ELECTRCITY**

In China, outlets are only for 220 volts. Overseas delegates bringing laptop computers and other electrical appliances are advised to check whether a transformer is required.

### **PASSPORT AND VISA**

Foreigners wishing to enter the People's Republic of China should have a valid passport. Visitors should obtain entry visa before coming to China. The Visa Notification or our invitation letter, which we mail you, is special for your application of visa. For visitors from Japan and a few other countries, if they only stay in China within 2 weeks, no visa is needed. However, please check it before your coming to China.

### **CLIMATE**

Shanghai has a mild climate. Early June is at the end of the spring or the beginning of the summer. Most of the time, it is fine or cloudy. For the temperature, please check it by the following web page before your leaving: <http://english.eastday.com/>

## **CONTACT US**

**For inquiries or further information about Shanghai NSA'07, please contact:**

**Jiong Ruan, Professor**

Chair of Organizing Committee, Shanghai NSA'07  
Research Center for Nonlinear Sciences  
School of Mathematical Sciences

**Fan-Ji GU, Professor**

Co-Chair of Organizing Committee, Shanghai NSA'07  
Research Center for Nonlinear Sciences  
School of Life Sciences

**Wei LIN, Dr., Associate Professor**

Co-Chair of Organizing Committee, Shanghai NSA'07  
Research Center for Nonlinear Sciences  
School of Mathematical Sciences

**For inquiries about advanced registration or financial issues, please contact:**

**Yong-De SHI, Professor**

Co-Chair of Organizing Committee, Shanghai NSA'07  
Department of Biophysics  
Medical College, Fudan University  
138 Yi Xue Yuan Road, Shanghai 200032, CHINA  
Phone: +86-21-6427-5720 Fax: +86-21-6427-5720  
E-mail: info@ssbiophysics.com.cn

Fudan University, Shanghai 200433, CHINA

Phone: +86-21-6510-0339, Fax: +86-21-6564-2342

Email for Shanghai NSA'07: [snsa@fudan.edu.cn](mailto:snsa@fudan.edu.cn)

**For more details, please visit the symposium web site:**

**<http://www.sss-nonlinear.org/webs/gjhy.htm>**