

## General Schedule

### **Dec 17, 2013, Tuesday Afternoon**

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**Venue: Lobby, Howard Johnson & First Floor, Building A of TSIMF**

09:00-22:00    Arrival and registration (Lobby, Howard Johnson)

14:00-21:00    Arrival and registration (TSIMF)

18:30-19:30    *Dinner (Four Seasons Cafe of Howard Johnson)*

### **Dec 18, 2013, Wednesday**

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**Venue: A2-11, Second Floor, TSIMF**

08:30-09:00    Arrival

09:00            Opening Ceremony

09:00-09:05    Brief introduction of TSIMF, TSIMF Representative

09:05-09:10    Speech by Prof. Jining Chen, President of Tsinghua University

09:10-09:15    Speech by Prof. Shing-Tung Yau, Harvard University

09:15-09:20    Speech by the Government Representative

09:20-09:25    Speech by Chancellor. Henry T. Yang, University of California,  
Santa Barbara

09:25-09:35    Speech by Prof. Lo Yang, Chinese Academy of Sciences

09:35-09:40    Speech by Mr. Yuan Chen, Vice Chairman of Chinese People's  
Political Consultative Conference

09:40--09:45    Inauguration of TSIMF

*Group Photo*

*Tea            (Outside the conference room)*

10:30-11:30    Speeches by mathematicians and representatives of institutions

11:30-13:00    *Lunch (Dining Hall, B1 of TSIMF & Four Seasons Cafe of Howard  
Johnson)*

Plenary Talk: Chair, Prof. Shing-Tung Yau

14:00-15:00 Plenary Talk: David Gross, University of California at Santa Barbara

15:00-16:00 Plenary Talk: James Mirrlees, the Chinese University of Hong Kong

*Tea (Outside the conference room)*

16:30-17:30 Plenary Talk: Eric Maskin, Harvard University

18:00 Bus leaves for Howard Johnson for banquet

18:30-20:30 *Dinner (Grand Ballroom at Howard Johnson)*

### **Dec 19, 2013, Thursday**

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#### **Venue: A2-11, Second Floor, TSIMF**

Chair, Lizhen Ji, University of Michigan

08:30-09:30 Plenary Talk: Yakov G. Sinai, Princeton University

09:30-10:30 Plenary Talk: Joseph Bernstein, Tel Aviv University

*Tea (Outside the conference room)*

11:00-12:00 Plenary Talk: Bảo Châu Ngô, University of Chicago

12:00-13:00 *Lunch (Dining Hall, B1 of TSIMF & Four Seasons Cafe of Howard Johnson)*

14:00-15:00 Plenary Talk: Clifford Taubes, Harvard University

Chair, Prof. Shing-Tung Yau, Harvard University

15:00-16:00 Plenary Talk: Shoucheng Zhang, Stanford University & Qikun Xue, Tsinghua University

*Tea (Outside the conference room)*

16:30-17:00 Topological Materials Workshop (A121)

17:00-17:30 Topological Materials Workshop (A121)

16:30-17:15 Automorphic Periods and Spherical Varieties Workshop (A110)

17:15-18:00 Automorphic Periods and Spherical Varieties Workshop (A110)

*\*For the detailed arrangement of workshop, please refer to the following program schedule.*

18:30-19:30 *Dinner (Four Seasons Cafe of Howard Johnson)*

## **Dec 19, 2013, Thursday**

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**Venue: Chao Room, Howard Johnson**

20:00-21:00 Plenary Talk: Shing-Tung Yau, Harvard University

21:00-21:30 Book Signing

## **Dec 20, 2013, Friday**

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**Venue: Building A, TSIMF**

08:30-12:00 Morning Session of workshops

12:00-13:00 *Lunch (Dining Hall, B1 of TSIMF & Four Seasons Cafe of Howard Johnson)*

14:00-18:00 Afternoon Session of workshops

## **Dec 20, 2013, Friday**

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**Venue: A110, First Floor, TSIMF**

Contributed Talk Session

17:15-17:30 Qingtao Chen, University of California, Berkeley

18:30-19:30 *Dinner (Four Seasons Cafe of Howard Johnson)*

## **Dec 21, 2013, Saturday Morning**

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**Venue: Building A, TSIMF**

08:30-12:00 Morning Session of workshops

12:00-13:30 *Lunch (Dining Hall, B1 of TSIMF & Four Seasons Cafe of Howard Johnson)*

## **Dec 21, 2013, Saturday Afternoon**

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### **Excursion**

Yalong Bay Tropical Paradise Forest Park

*Special Notes: We only provide one trip transportation. And you are responsible for paying your own entrance fees.*

13:20            Pick-up at TSIMF and Howard Johnson  
16:30            Back from Yalong Bay  
18:30-20:30    *Dinner (Outdoor barbecue, Caribbean Sea of Howard Johnson)*

**Dec 22, 2013, Sunday**

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**Venue: Building A, TSIMF**

08:30-12:00    Morning Session of workshops  
12:00-13:00    *Lunch (Dining Hall, B1 of TSIMF & Four Seasons Cafe of Howard Johnson)*  
14:00-18:00    Afternoon Session of workshops  
18:30-19:30    *Dinner (Four Seasons Cafe of Howard Johnson)*

**Dec 23, 2013, Monday, Departure**

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**Venue: A110**

08:30-12:00    Two talks of Automorphic Periods and Spherical Varieties Workshop  
12:00-13:30    *Lunch (Four Seasons Café of Howard Johnson)*

# Schedule for the Automorphic Periods and Spherical Varieties Workshop at Sanya

Venue: A 110, TSIMF

December 19-23, 2013

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## **Dec 19, 2013, Thursday afternoon**

16:30-17:15    Title: What does the structure of spherical varieties tell us about L-functions?

Yiannis Sakellaridis, Rutgers University at Newark

17:15-18:00    Title: Introduction to spherical varieties

Friedrich Knop, University of Erlangen

18:30-19:30    *Dinner (Four Seasons Cafe of Howard Johnson)*

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Venue: A 110, TSIMF

December 19-23, 2013

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## **Dec 20, 2013, Friday**

08:30-10:00    Title: Stacks in Representation Theory

Joseph Bernstein, Tel Aviv University

10:30-11:15    Title: The Local Structure Theorem

Friedrich Knop, University of Erlangen

*Tea*            (*Outside the conference room*)

12:00-13:00    *Lunch (Dining Hall, B1 of TSIMF & Four Seasons Cafe of Howard Johnson)*

14:00-14:45    Title: On p-adic Waldspurger formula

Shouwu Zhang, Princeton University

15:00-15:45    Title: The Gross-Prasad conjecture and local theta correspondence

Atsushi Ichino, Kyoto University

*Tea*            (*Outside the conference room*)

16:15-17:00    Title: Associated varieties and associated cycles of local theta lifts

Hung Yean Loke, National University of Singapore

18:30-19:30     *Dinner (Four Seasons Café of Howard Johnson)*

Venue: A 110, TSIMF

December 19-23, 2013

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**Dec 21, 2013, Saturday Morning**

08:30-10:30     No talk scheduled (Prof. Ngo's lecture)

*Tea                (Outside the conference room)*

12:00-13:00     *Lunch (Dining Hall, B1 of TSIMF & Four Seasons Café of Howard Johnson)*

18:30-20:30     *Dinner (Outdoor barbecue, Caribbean Sea of Howard Johnson)*

Venue: A 110, TSIMF

December 19-23, 2013

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**Dec 22, 2013, Sunday**

08:30-09:15     Title: TBA

Ye Tian, Chinese Academy of Sciences

09:30-10:15     Title: The nonvanishing hypothesis at infinity for Rankin-Selberg convolutions

Binyong Sun, Chinese Academy of Sciences

*Tea                (Outside the conference room)*

10:45-11:30     Title: Endoscopic classification of automorphic representations on classical groups: prospects and applications

Chung Pang Mok, McMaster University

12:00-13:00     *Lunch (Dining Hall, B1 of TSIMF & Four Seasons Café of Howard Johnson)*

14:00-14:45     Title: Endoscopy Transfers: Construction and Characterization.

Dihua Jiang, University of Minnesota

15:00-15:45     Title: Adelic action on automorphic periods and special values of L-

functions

Andre Reznikov, Bar-Ilan University, Israel

*Tea (Outside the conference room)*

16:15-17:00 Title: A local-global question in automorphic forms

U.K. Anandavardhanan, Indian Institute of Technology Bombay

18:30-19:30 *Dinner (Four Seasons Café of Howard Johnson)*

Venue: A 110, TSIMF

December 19-23, 2013

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**Dec 23, 2013, Monday Morning**

08:30-09:15 Title: A relative local Langlands correspondence

Dipendra Prasad, School of Mathematics, TIFR

09:30-10:15 Title: TBA

Eitan Sayag, Ben Gurion University

*Tea (Outside the conference room)*

10:45-11:30 Title: On the Casselman-Shalika Formula

Nadya Gurevich, Ben Gurion University

12:00-13:30 *Lunch (Four Seasons Café of Howard Johnson)*

**Dec 23, 2013, Monday Afternoon, Departure**

**December 19-23, 2013**

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# Schedule for the Geometric Methods in the Langlands Program Workshop at Sanya

Venue: A 103, TSIMF

December 20-22, 2013

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## **Dec 20, 2013, Friday**

08:30-10:00 No talk scheduled (Prof. Bernstein's lectures)

*Tea (Outside the conference room)*

12:00-13:00 *Lunch (Dining Hall, B1 of TSIMF & Four Seasons Café of Howard Johnson)*

Chair, Prof. Ngô Bảo Châu, University of Chicago

14:00-15:00 Title: Stable distributions in Bernstein center and local geometric  
Langlands duality

Roman Bezrukavnikov, Massachusetts Institute of Technology

15:00-16:00 Title: On the geometric construction of the Bernstein projector to the  
depth zero spectrum

Yakov Varshavsky, the Hebrew University of Jerusalem

*Tea (Outside the conference room)*

16:30-17:30 Title: Non-Abelian Hodge Theory in Positive Characteristic  
Tsao-Hsien Chen, Northwestern University

18:30-19:30 *Dinner (Four Seasons Café of Howard Johnson)*

Venue: A 103, TSIMF

December 20-22, 2013

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## **Dec 21, 2013, Saturday Morning**

Chair, Prof. Zhiwei Yun, Stanford University

08:30-10:30 Title: TBA

Ngô Bảo Châu, University of Chicago



*Tea* (Outside the conference room)

11:00-12:00 Title: Patching and the p-adic Langlands correspondence  
Sug Woo Shin, Massachusetts Institute of Technology

12:00-13:30 *Lunch (Dining Hall, B1 of TSIMF & Four Seasons Café of Howard Johnson)*

18:30-20:30 *Dinner (Outdoor barbecue, Caribbean Sea of Howard Johnson)*

Venue: A 103, TSIMF

December 20-22, 2013

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**Dec 22, 2013, Sunday**

Chair, Prof. Zhiwei Yun, Stanford University

08:30-9:30 Title: On the counting of Hitchin bundles  
Pierre-Henri Chaudouard, Université Paris, Jussieu

09:30-10:30 Title: Nonabelian Duality and Localization of Kac-Moody Algebras  
Nikita Rozenblyum, Northwestern University

*Tea* (Outside the conference room)

11:00-12:00 Title: Local models and nearby cycles for  $\Gamma_1(p)$ -level structure  
Thomas J. Haines, University of Maryland, College Park

12:00-13:00 *Lunch (Dining Hall, B1 of TSIMF & Four Seasons Café of Howard Johnson)*

14:00-15:00 Title: TBA  
Xinwen Zhu, Northwestern University

16:00-17:00 Title: TBA  
Zhiwei Yun, Stanford University

*Tea* (Outside the conference room)

18:30-19:30 *Dinner (Four Seasons Café of Howard Johnson)*

# Schedule for the Some Trends in Dynamical Systems and Fluid Dynamics Workshop at Sanya

Venue: A 120, TSIMF

December 20-22, 2013

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## **Dec 20, 2013, Friday**

Chair, Prof. Tai-Peng Tsai, University of British Columbia

09:00-9:45 Title: Mathematics of Proteins

Stephen Smale, City University of Hong Kong

*Tea (Outside the conference room)*

10:30-11:15 Title: TBA

Yakov Sinai, Princeton University

11:15-12:00 Title: Vanishing theorems for the discretely self-similar solutions  
to the Euler and the MHD equations

Dongho Chae, Chung-Ang University, Korea

12:00-13:00 *Lunch (Dining Hall, B1 of TSIMF & Four Seasons Café of Howard  
Johnson)*

Chair, Prof. Jiahong Wu, Oklahoma State University

14:00-14:45 Title: Backward uniqueness of parabolic equations with variable  
coefficients in half space

Liqun Zhang, Institute of Math, Chinese Academy of Sciences

14:45-15:30 Title: Angles of affine lattice points and  $\sqrt{n} \bmod 1$

Ilya Vinogradov, University of Bristol

*Tea (Outside the conference room)*

16:00-16:45 Title: Duchon-Robert solutions for the Rayleigh-Taylor and  
Muskat problems

Percy Wong, Princeton University

16:45-17:30 Title: A Liouville theorem for the planar Navier-Stokes  
equations with the no-slip boundary condition and its  
application to a geometric

Yasunori Maekawa, Mathematical Institute, Tohoku University

18:30-19:30 *Dinner (Four Seasons Café of Howard Johnson)*

Venue: A 120, TSIMF

December 20-22, 2013

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**Dec 21, 2013, Saturday Morning**

Chair, Prof. Dongho Chae, Chung-Ang University, Korea

09:00-9:45 Title: Regularity criteria in weak L3 for 3D incompressible

Navier-Stokes equations

Tai-Peng Tsai, University of British Columbia

*Tea (Outside the conference room)*

10:30-11:15 Title: Nonlinear Partial Differential Equations with Partial or  
Fractional Dissipation

Jiahong Wu, Oklahoma State University

11:15-12:00 Title: TBA

Yi Zhou, Fudan University

12:00-13:30 *Lunch (Dining Hall, B1 of TSIMF & Four Seasons Café of Howard  
Johnson)*

18:30-20:30 *Dinner (Outdoor barbecue, Caribbean Sea of Howard  
Johnson)*

Venue: A 120, TSIMF

December 20-22, 2013

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**Dec 22, 2013, Sunday**

Chair, Prof. Zhen Lei, Fudan University

09:00-9:45 Title: TBA

Francesco Cellarosi, University of Illinois

*Tea (Outside the conference room)*

10:30-11:15    Title: TBA  
                   Huicheng Yin, Nanjing University

11:15-12:00    Title: TBA  
                   Hua Chen, Wuhan University

12:00-13:00    *Lunch (Dining Hall, B1 of TSIMF & Four Seasons Café of Howard Johnson)*

Chair, Prof. Percy Wong, Princeton University

14:00-14:45    Title: Remark on the Helmholtz decomposition in domains  
                   with noncompact boundary  
                   Hideyuki Miura, Tokyo Institute of Technology

14:45-15:30    Title: TBA  
                   Xiaoyi Zhang, University of Iowa

*Tea            (Outside the conference room)*

16:00-16:45    Title: On 3D Incompressible Navier-Stokes Equations  
                   Zhen Lei, Fudan University

18:30-19:30    *Dinner (Four Seasons Café of Howard Johnson)*

# Schedule for the Speculations and wild conjectures in low dimensional differential topology Workshop at Sanya

Venue: A 115, TSIMF

December 19-23, 2013

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## **Dec 20, 2013, Friday**

Chair, Prof. Clifford Taubes or Michael Hutchings

09:00-10:00 Title (a): Compactness and  $SL(2;C)$  analogs of the anti-self dual equations

Clifford Taubes, Harvard University

*Tea (Outside the conference room)*

10:30-12:00 Title: The Triangulation Conjecture

Ciprian Manolescu, University of California, Los Angeles

12:00-13:00 *Lunch (Dining Hall, B1 of TSIMF & Four Seasons Café of Howard Johnson)*

Chair, Prof. Clifford Taubes or Michael Hutchings

14:00-15:00 Title: Knot Floer homology and the unoriented four-ball

Genus

Andras Stipsicz, Renyi Institute of Mathematics, Hungarian Academy of Sciences

15:00-16:00 Title: On knot surgery 4-manifolds

Jongil Park, Department of Mathematical Sciences, Seoul National University

*Tea (Outside the conference room)*

16:30-17:15 Title: TQFT for manifolds with special holonomy

Conan Leung, the Chinese University of Hong Kong

17:15-18:00 Title: On Minimal Genus Problems

Zhongtao Wu, the Chinese University of Hong Kong

18:30-19:30 *Dinner (Four Seasons Café of Howard Johnson)*

**Dec 21, 2013, Saturday Morning**

Chair, Prof. Clifford Taubes or Michael Hutchings

08:30-09:15 Title: TBA

Gordana Matic, University of Georgia

09:15-10:00 Title: Kodaira dimension of low dimensional manifolds

Tian-Jun Li, University of Minnesota

*Tea (Outside the conference room)*

10:30-11:15 Title: TBA

Nicolai Reshetikhin, University of California, Berkeley

11:15-12:00 Title: TBA

Mikio Furuta, University of Tokyo

12:30-13:30 *Lunch (Dining Hall, B1 of TSIMF & Four Seasons Café of Howard Johnson)*18:30-20:30 *Dinner (Outdoor barbecue, Caribbean Sea of Howard Johnson)***Dec 22, 2013, Sunday**

Chair, Prof. Clifford Taubes or Michael Hutchings

09:00-10:00 Title (b): Compactness and  $SL(2; \mathbb{C})$  analogs of the anti-self dual equations

Clifford Taubes, Harvard University

*Tea (Outside of the conference room)*

10:30-11:15 Title: Some questions about quantitative symplectic geometry in four dimensions

Michael Hutchings, University of California, Berkeley

11:15-12:00 Title: Open problems in and around Quantum Chern Simons theory

Jørgen Ellegaard Andersen, Aarhus University

12:00-13:00 *Lunch (Dining Hall, B1 of TSIMF & Four Seasons Café of Howard Johnson)*

*Johnson)*

Chair, Prof. Clifford Taubes or Michael Hutchings

14:00-15:00 Title: TQFT in Seiberg-Witten and Heegaard Floer theories

Yi-Jen Lee, the Chinese University of Hong Kong

15:00-16:00 Title: The virtual Haken theorem and 4-manifolds

Stefan Friedl, Universität Regensburg, Regensburg, Germany

*Tea (Outside the conference room)*

16:30-18:00 Discussion of open problems and speculations

18:30-19:30 *Dinner (Four Seasons Café of Howard Johnson)*

# Schedule for the Topological Materials Workshop at Sanya

Venue: A 121, TSIMF

December 19-22, 2013

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## **Dec 19, 2013, Thursday**

Chair, Prof. Shoucheng Zhang / Jun Li

16:30-17:00    Title: Twisted Equivariant Matter

Dan Freed, University of Texas

17:00-17:30    Title: 3-Cocycles, Non-Associative Star-Products and the Magnetic

Analogue of R-Flux String Vacua

Dieter Lüst, Max Planck Institute for Physics in München

18:30-19:30    *Dinner (Four Seasons Café of Howard Johnson)*

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Venue: A 121, TSIMF

December 19-22, 2013

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## **Dec 20, 2013, Friday**

Chair, Prof. Shoucheng Zhang / Jun Li

08:30-09:00    Title: TBA

Xiao-Gang Wen, Massachusetts Institute of Technology

09:00-09:30    Title: TBA

Hai Lin, Harvard University

09:30-10:00    Title: TBA

Xiao-Liang Qi, Stanford University

*Tea            (Outside the conference room)*

10:30-12:00    Discussion/Dialog Section

12:00-13:00    *Lunch (Dining Hall, B1 of TSIMF & Four Seasons Café of Howard Johnson)*



- 14:00-14:30 Title: Creating Majorana Fermions on the Edge of InAs/GaSb Quantum Wells  
Ruirui Du, Rice University
- 14:30-15:00 Title: Quantum Oscillations in Kondo Insulator SmB  
Lu Li, Department of Physics, University of Michigan
- 15:00-15:30 Title: Engineering topological insulator thin films for topological quantum phenomena  
Ke He, Chinese Academy of Sciences
- Tea (Outside the conference room)*
- 16:00-16:30 Title: Electronic Structure and Spin Texture of Topological Materials  
Xingjiang Zhou, Chinese Academy of Sciences
- 16:30-17:00 Title: TBA  
Yulin Chen, University of Oxford
- 18:30-19:30 *Dinner (Four Seasons Café of Howard Johnson)*

Venue: A 121, TSIMF

December 19-22, 2013

**Dec 21, 2013, Saturday**

- 08:30-09:00 Title: TBA  
Zhong Fang, Chinese Academy of Sciences
- 09:00-09:30 Title: TBA  
Cenke Xu, University of California, Santa Barbara
- 09:30-10:00 Title: TBA  
Hong Yao, Tsinghua University
- Tea (Outside the conference room)*
- 10:30-11:00 Title: TBA

Xi Dai, Chinese Academy of Sciences

11:00-11:30 Title: Quaternionic analytic  $SU(2)$  Landau levels and topological insulators in 3D

Congjun Wu, University of California, San Diego

11:30-12:00 Free discussion

12:00-13:30 *Lunch (Dining Hall, B1 of TSIMF & Four Seasons Café of Howard Johnson)*

18:30-20:30 *Dinner (Outdoor barbecue, Caribbean Sea of Howard Johnson)*

Venue: A 121, TSIMF

December 19-22, 2013

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**Dec 22, 2013, Sunday**

09:00-09:30 Title: A mathematical challenge at AIMR—direct collaboration with materials science

Motoko Kotani, Tohoku University

09:30-10:00 Title: Topological crystalline insulators and topological magnetic crystalline insulators

Chao-Xing Liu, Pennsylvania State University

*Tea (Outside the conference room)*

10:30-11:00 Title: Majorana ghosts: From topological superconductor to the origin of neutrino masses, three generations and their mass mixing

Zheng-Cheng Gu, Perimeter Institute for Theoretical Physics

11:00-11:30 Title: TBA

Zhong Wang, Tsinghua University

11:30-12:00 Free discussion

12:00-13:00 *Lunch (Dining Hall, B1 of TSIMF & Four Seasons Café of Howard Johnson)*

- 14:00-14:30 Title: TBA  
Kang Lung Wang, University of California, Los Angeles
- 14:30-15:00 Title: Fully gapped topological surface states in  $\text{Bi}_2\text{Se}_3$  films  
induced by a d-wave high-temperature superconductor  
Xi Chen, Tsinghua University
- Tea (Outside the conference room)*
- 15:30-16:00 Title: Surface transport in a hybrid  $\text{Bi}_2\text{Se}_3/\text{Bi}_2\text{Te}_3$  heterostructure and  
magnetoresistance properties up to 50 Tesla of ultrathin  $\text{Bi}_2\text{Se}_3$  films  
Jian Wang, Peking University
- 16:00-16:30 Title: Chemistry of Topological Insulator Nanostructures:  
Synthesis and Modulation  
Hailin Peng, Peking University
- 18:30-19:30 *Dinner (Four Seasons Cafe of Howard Johnson)*