## Summer Research Workshop on

## Quantum Information Science

Shanghai, China  
July 15 - 18, 2014.





Organizer

[Department of Mathematics, Shanghai University](http://www.math.shu.edu.cn/)

**Summer Research Workshop on**

Quantum Information Science

July 15-18, 2014, Shanghai University, Shanghai, China

**Purpose of the Conference**

The purpose of the summer workshop is to promote collaborative research on the rapidly developing interdisciplinary area of quantum information science. The focus will be on the mathematical aspects of the subject. Basic background and current research topics will be assumed. There will be four to five themes on the subjects including entanglement, quantum operations, quantum error correction, etc. Researchers will present their recent results and open problems on these topics. Participants will share their experiences and insights to solve the open problems. Researchers and graduate students from mathematics, physics, computer sciences, etc. are most welcomed to participate.

Organizing Committee

|  |  |
| --- | --- |
| Chi-Kwong Li | College of William and Mary, USA;  Honorary professor of Shanghai University  (Shanghai Overseas Renowned Professor Program);  Honorary professor of University of Hong Kong. |
| Qing-Wen Wang | Shanghai [University](app:ds:Peking%20University), China. |

**Website:**

<http://people.wm.edu/~cklixx/qc2014.html>

**Schedule**

Registration Date: July 15， 2:15 - 2:30 p.m.

Registration location: Lehu Building, 716 Jingqiu Road, Shanghai University (Baoshan Campus, North Gate)

Talks: July 15-18, 2014.

**Accommodation:** Lehu Building.

**Meeting place: G Building** G507.

**Transportation**

* **By Airplane**

Pudong Airport 🡪 Shanghai University (New Campus)

Line 1: Pudong airport By Metro Line 2 to Jing'an Temple exchange to Metro Line 7 to Shanghai University .

Line 2: Directly take taxi to 716 Jingqiu Road, Shanghai University (Baoshan Campus, North Gate).

Hongqiao airport 🡪 Shanghai University (New Campus)

Line 3: Hongqiao airport By Metro Line 2 to Jing'an Temple exchange to Metro Line 7 to Shanghai University .

Line 4: Directly take taxi to 716 Jingqiu Road, Shanghai University (Baoshan Campus, North Gate).

* **By Train**

Shanghai South Railway Station 🡪 Shanghai University

Line 5: By Metro Line 1 to Changshu Road exchange to Metro Line 7 to Shanghai University .

Line 6: Directly take taxi to 716 Jingqiu Road, Shanghai University (Baoshan Campus, North Gate).

Shanghai Railway Station 🡪 Shanghai University

Line 7: By Metro Line 1 to Changshu Road exchange to Metro Line 7 to Shanghai University.

Line 8: By Metro Line 3 to Zhenping Road exchange to Metro Line 7 to Shanghai University.

Line 9: Directly take taxi to 716 Jingqiu Road, Shanghai University (Baoshan Campus, North Gate).

Line 10: **By bus**

Bus Route 58: Railway Station (Hengfeng Road) 🡪 terminus (near 716 Jingqiu Road, North Door of Shanghai University Baoshan Campus) .

Bus Route 767B: Railway Station (Hengfeng Road) 🡪 terminus (near 716 Jingqiu Road, North Door of Shanghai University Baoshan Campus) .

报到地址：锦秋路716号，上海大学宝山校区北门乐乎新楼1号楼

交通路线

* **浦东机场到上海大学新校区的路线：**

**路线1：**从浦东机场乘地铁2号线到静安寺站, 转乘地铁7号线到上海大学站就到宝山区锦秋路716号上海大学新校区北大门。

**路线2：**从浦东机场直接乘出租车到宝山区锦秋路716号上海大学新校区北大门。

* **虹桥机场到上海大学新校区的路线：**

**路线3：**从上海虹桥机场乘地铁2号线到静安寺站, 转乘地铁7号线到上海大学站就到宝山区锦秋路716号上海大学新校区北大门。

**路线4：**从上海虹桥机场直接乘出租车到宝山区锦秋路716号大学新校区北大门。

* **上海火车站（新客站）到上海大学新校区的路线**：

**路线5：**从火车站（新客站）南一出口出站，向前走100米，到恒丰路口（不要过马路），向左(南)拐弯走约30米，到公共汽车站，乘58路或767B路公交车到终点站锦秋路(原陈太路)下车，过马路向东走约200米到上海大学新校区北大门（锦秋路716号），进大门向左即看到新乐楼宾馆。

**路线6：**从火车站（新客站）乘出租车到宝山区锦秋路716号上海大学新校区北大门。

* **上海火车站（南站）到上海大学新校区的路线：**

**路线7：**从上海火车站（南站）乘地铁1号线到常熟路站, 转乘地铁7号线到上海大学站就到宝山区锦秋路716号上海大学新校区北大门。

路线8：从上海火车站（南站）乘地铁3号线到镇坪路站, 转乘地铁7号线到上海大学站就到宝山区锦秋路716号上海大学新校区北大门。

路线9：从上海火车站（南站）直接乘出租车到宝山区锦秋路716号上海大学新校区北大门。

**Schedule for the 2014 workshop on QIS**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Time  Date | 9:30 - 10:30 | 10:30 - 11:30 | Noon - 2:30 p.m. | 2:30 - 4:30 p.m. |  |
| July 15 |  |  | **2:15 - 2:30 p.m.**  Registration. | J. Gonzalo Muga and Xi Chen  *Topic: Shortcuts to adiabaticity* |  |
| July 16 | Man-Duen Choi  *Topic: Direct sums and Tensor products* | Chi-Kwong Li and Yiu-Tung Poon  Topic: *Problems in quantum error*  *Correction* | Lunch break | Xinhua Peng  *Topic: A Single Spin Coherence and Many-Body Physics* |  |
| July 17 | Jinchuan Hou  *Topic: Fidelity and entanglement fidility* | | Lunch break | Ken He and Yu Guo  *Topic: QIS problems* | *6:00 Banquet* |
| July 18 | Zejun Huang  *Topic: Preserver problems* |  | Lunch break |  | 5:00  Closing |

**Invited participants**

|  |  |  |
| --- | --- | --- |
| Rajendra Bhatia | Indian Statistical Institute |  |
| Xi Chen | Shanghai University | chenxi1979cn@gmail.com |
| Man-Duen Choi | University of Toronto | choi@math.toronto.edu |
| Yu Guo | Shanxi Datong University | guoyu3@aliyun.com |
| Kan He | Taiyuan University of Technology | kanhemath@aliyun.com |
| Jinchuan Hou | Taiyuan University of Technology | jinchuanhou@yahoo.com.cn |
| Janet Hung | Fudan University |  |
| Zejun Huang | Hunan University | huangzejun@yahoo.cn |
| Chi-Kwong Li | College of William and Mary, SHU | math.ckli@gmail.com |
| Zhihao Ma | Shanghai Jiaotong University | ma9452316@gmail.com |
| J. Gonzalo Muga | Catedratico UPV/EHU | jg.muga@ehu.es |
| Xinhua Peng | University of Science and Technology of China | xinhuapeng@gmail.com |
| Yiu-Tung Poon | Iowa State University | ytpoon3@gmail.com |
| Xiaofei Qi | Shanxi University | qixf1980@126.com |
| Yidun Wan | Perimeter Institute |  |
| Qing-Wen Wang | Shanghai University | wqwshu9@126.com |
| Xiaodong Zhang | Shanghai Jiaotong University | xiaodong@sjtu.edu.cn |
| Xingzhi Zhan | Eastern China Normal University | zhan@math.ecnu.edu.cn |
| Xuanmin Zhu | Xidian University | Zhuxuanmin2006@163.com |
| Xiaoning Hao | Taiyuan University of Technology | [haoxiaoningning@163.com](mailto:haoxiaoningning@163.com) |
| Siqing Yan | Taiyuan University of Technology | ysq923@163.com |

上海大学数学系

上海大学是国家“211工程”重点建设高校之一。上海大学数学系现有教职工108人，专职教师90人，教授21名，博士生导师20人，副教授30人，国家千人计划专家1名、上海领军人才1名、曙光学者1名、入选上海浦江人才计划4名、宝钢优秀教师5名，45岁以下博士比例100%，获得海外学位或有海外研究经历的人员比例为90%；在校本科生500多人、硕士研究生近300人、博士研究生80多人。

数学系有数学一级学科博士点、数学博士后流动站，数学、系统科学、统计学三个一级学科硕士点；有上海高校一流学科——数学、上海市重点学科——运筹与控制、上海市教委重点学科——数学科学与技术。在2008到2020年上海市高校发展定位规划中，上海大学数学学科被列为“国家级”一线学科和“扶强”重点发展学科；上海大学核心数学研究所、上海大学优化开放实验室、上海大学数学与编码密码研究所、上海大学系统科学研究所、上海大学应用数学与系统科学研究所均挂靠数学系；上海市青少年科技人才培养基地—上海大学数学科学实践工作站是全国首家数学工作站。

在英国QS发布的“2012-2013世界大学数学专业排行榜”中，上海大学数学专业全球并列第51名，在中国内地高校中排名第5；根据美国Essential Science Indicators（ESI）数据库最新数据，进入全球前1%的大学数学系有241个，上海大学数学系排名第124。

近年来数学系每年有100多位国内外著名专家学者前来讲学交流，10多位教师出国访问与科学合作研究，主办或承办了包括“第14届国际线性代数协会年会”在内的大型国际学术会议10多次。