



ASIA-PACIFIC SCHOOL AND WORKSHOP

ON GRAVITATION AND COSMOLOGY 2023

14-22, MAY, 2023

Hosted by:

International Centre for Theoretical Physics Asia-Pacific, UNESCO

Co-hosted by:

Asia Pacific Center for Theoretical Physics
Beijing Normal University
Hangzhou Institute of Advanced Study, UCAS
Institute of Theoretical Physics, CAS
Zhejiang University of Technology

Hangzhou, China

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BACKGROUND

Asia-Pacific School and Workshop on Gravitation and Cosmology (APSW-GC) is a series of annual activities, which takes place in the Asia-Pacific region. It aims to promote understanding of frontier issues in gravitation and cosmology, to introduce and propose challenging problems to young physicists. It has been hosted by AP regions since 2007: Tainan(2007); Taitung(2008); Pohang(2009); Taitung(2010); Shanghai(2011); Kyoto(2012); Jeju-Island(2013); Taipei(2014); Singapore(2015); Changsha(2016); HongKong(2017); Shanghai(2018); Kyoto(2019); Daejeon(2020); Taipei(2022).

The Asia-Pacific School and Workshop on Gravitation and Cosmology 2023 will take place in Hangzhou, China. Synopsis/topics to be covered include: Black hole physics, Gravitational waves and fundamental physics, Inflation and cosmology, etc.

DATE & PLACES

Date: 14-22 May, 2023

Lecture Place: Lecture Hall, 3rd Floor, Building 7, "Eoc·Economy" Senior Talent Hub

ACCOMMODATION

Hotel	Address	Payment
Qiandaohu PIN-LAKE Resort Hotel 千岛湖品湖度假酒店	No.999 Port Road, Qiandaohu Town, Chun'an County, Hangzhou, China Tel: 0571-64987777	Support: Cash, Debit Card, Credit Card (VISA/Master), Alipay, WeChat, etc.
"Eoc·Economy" Senior Talent Hub 两山高层次人才聚集区	No.668 Port Road, Qiandaohu Town, Chun'an County, Hangzhou, China Tel: 0571-87219888	

*Price has met the reimbursement standards for travel expenses.
Special questions please contact: zhaojiejin@ucas.ac.cn



REGISTRATION

Time of Registration: 10:30-19:30 14 May, 2023

Registration Place: Lobby of Qiandaohu PIN-LAKE Resort Hotel

Payment of Registration Fee (1,000RMB)

Chinese Participants: Scan the QR code to pay with WeChat at the registration desk

微信扫码报到台二维码支付(需使用公务卡报销人员,请提前微信绑定公务卡)

Foreign Participants: Pay with cash

CONTACTS

Lecture & Talks

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COMMITTEE

INTERNATIONAL ADVISORY COMMITTEE

- Parameswaran Ajith (International Centre for Theoretical Sciences)
- David Blair (University of Western Australia)
- Rong-Gen Cai (Chinese Academy of Sciences/Chair)
- Inyong Cho (Seoul National University of Science and Technology)
- Chiang-Mei Chen (National Central U)
- Sadakazu Haino (Academia Sinica)
- Gungwon Kang (Chungang University)
- Hyung Mok Lee (Seoul National University)
- Kei-ichi Maeda (Waseda University)
- Misao Sasaki (Kavli IPMU, Tokyo University)
- Chopin Soo (National Cheng Kung University)
- Takahiro Tanaka (Kyoto University)

LOCAL ORGANIZING COMMITTEE

- Chao-Qiang Geng (Hangzhou Institute of Advanced Study, UCAS)
- Huai-Ke Guo (International Centre for Theoretical Physics Asia-Pacific)
- Zong-Kuan Guo (Institute of Theoretical Physics, CAS/co-Chair)
- Bin Hu (Beijing Normal University)
- Qing-Guo Huang (Institute of Theoretical Physics, CAS)
- Li Li (Institute of Theoretical Physics, CAS)
- Yong-Liang Ma (Hangzhou Institute of Advanced Study, UCAS/Chair)
- Min Zhang (International Centre for Theoretical Physics Asia-Pacific)
- Yun-Long Zhang (Hangzhou Institute of Advanced Study, UCAS)
- Tao Zhu (Zhejiang University of Technology)

OVERALL SCHEDULE

SECTION CHAIRS:

Section Chairs	Morning	Afternoon
5.15/Mon	Chao-Qiang Geng & Li Li	Hong-Sheng Zhang & Huai-Ke Guo
5.16/Tue	Shao-Wen Wei & Da Huang	Jun Tao & Qiang Wu
5.17/Wed	Jia-Lin Zhang & Ye-Ling Zhou	Zhen-Ming Xu & Yong Zhou
5.18/Thu	Chao Niu & Shou-Long Li
5.19/Fri	Jia-Hui Huang & Tao Zhu	Hong-Bo Jin & Rong-Jia Yang
5.20/Sat	Yong Tang & Jun Zhang	Xiao-Mei Kuang & Jun Nian
5.21/Sun	Shao-Qi Hou & Yun-Long Zhang

TIME TABLE: [HTTPS://INDICO.ICTP-AP.ORG/EVENT/77/](https://indico.ictp-ap.org/event/77/)

Time	8:30-9:30	9:30-10:30	11:00-12:00	12:00	14:30-15:30	15:30-16:30	17:00-18:00	18:00
Sun/5.14	Check-in			Check-in at Pin Lake Hotel				dinner
Mon/5.15	Opening Wu & Kim	Yue-Liang Wu	Bin Chen	lunch	Hong Lu-1	Hong Lu-2	regular talks	Banquet
Tue/5.16	R.Mann-1	R.Mann-2	Wei-Tou Ni	lunch	Hong Lu-3	Hong Lu-4	regular talks	dinner
Wed/5.17	S.P.Kim-1	S.P.Kim-2	Hyung-Mok Lee	lunch	Regular talks			dinner
Thu/5.18	R.Mann-3	R.Mann-4	Bum-Hoon Lee	lunch	Free Discussion			dinner
Fri/5.19	S.P.Kim-3	S.P.Kim-4	Anzhong Wang	lunch	Yu-Xiao Liu	Chengmin Zhang	Ugo Moschella	dinner
Sat/5.20	Workshop Talks			lunch	Workshop Talks			dinner
Sun/5.21	Workshop Talks			lunch	Free Discussion			dinner
Mon/5.22	Check-out							

DINNER PLACES

Breakfast: Accommodation

Reception (18:00-20:00): F Floor, Pin-Xiu Cafeteria (品秀厅), Pin-Lake Hotel

Lunch & Dinner: F Floor, Pin-Xiu Cafeteria (品秀厅), Pin-Lake Hotel

Banquet: 1st Floor, Pin-Lake Hall (品湖厅), Pin-Lake Hotel

DETAILED ARRANGEMENTS

周一 MON/MAY 15

	会议内容 Title	主持人 Chairs	
09:00-09:30	Opening Remarks Yue-Liang Wu (UCAS/ICTP-AP) Sang Pyo Kim (Kunsan National U)	Chao-Qiang Geng	
时间 Time	内容 Title	报告人 Speakers	Chairs
09:30-10:30	Hyperunified Field Theory and Space-based Gravitational Wave Taiji Project	Yue-Liang Wu (UCAS/ICTP-AP)	Chao-Qiang Geng
10:30-11:00	Group Photo & Tea Break		
11:00-12:00	Holography of Black holes	Bin Chen (Peking University)	Li Li
12:00-14:00	Lunch		
14:30-15:30	Einstein Field Equations and Black Holes (1)	Hong Lu (Tianjin University)	Hong-Sheng Zhang
15:35-16:30	Einstein Field Equations and Black Holes (2)	Hong Lu (Tianjin University)	
16:30-17:00	Tea Break		
17:00-17:15	Defining Eccentricity for Gravitational Wave Astronomy	Mohammad Arif Shaikh (Seoul National U)	Huai-Ke Guo
17:15-17:30	Stationary black holes and stars in the Brans-Dicke theory with $\Lambda > 0$ revisited	Mohammad Sabir Ali (Lanzhou U)	
17:30-17:45	Complexity=Anything: Singularity Probes	Shan-Ming Ruan (YITP, Kyoto U)	
17:45-18:00	Maxwell's Demon for the Split Problem	Yang An (Zhejiang U of Technology)	
18:00-18:15	Black hole radiation phase space from 1d higher point of view	Mahdis Ghodrati (APCTP)	
18:15-19:30	Dinner (Banquet)		

周二 TUE/MAY 16

时间 Time	内容 Title	报告人 Speakers	Chairs
08:30-09:30	Black Hole Chemistry (1)	Robert Mann (Perimeter Institute)	Shao-Wen Wei
09:35-10:30	Black Hole Chemistry (2)	Robert Mann (Perimeter Institute)	
10:30-11:00	Tea Break		
11:00-12:00	Gravitational wave detection in space: status and outlook	Wei-Tou Ni (ICTP-Asia Pacific)	Da Huang
12:00-14:30	Lunch Break		
14:30-15:30	Einstein Field Equations and Black Holes (3)	Hong Lu (Tianjin University):	Jun Tao
15:35-16:30	Einstein Field Equations and Black Holes (4)	Hong Lu (Tianjin University):	
16:30-17:00	Tea Break		
17:00-17:15	Constraints on Spacetime Noncommutativity from CMB and LSS	Joby Panakkal Kochappan(APCTP)	Qiang Wu
17:15-17:30	Fates of bounded orbits in backgrounds of exotic compact objects	Yu-Peng Zhang(Lanzhou U)	
17:30-17:45	Cosmological Constant, Inflation, and Dark Matter Occurred Naturally from Duplex Higgs Mechanism for Poincare Gauge Gravity	Hongchao Zhang (Zhejiang U of Technology)	
17:45-18:00	Tightening the Penrose Inequality	Hossein Khodabakhshi (Tianjin University)	
18:00-19:30	Dinner		

周三 WED/MAY 17

时间 Time	内容 Title	报告人 Speakers	Chairs	
08:30-09:30	Black holes in Einstein-Maxwell and Yang-Mills theories (1)	Sang Pyo Kim (Kunsan National U)	Jia-Lin Zhang	
09:35-10:30	Black holes in Einstein-Maxwell and Yang-Mills theories (2)	Sang Pyo Kim (Kunsan National U)		
10:30-11:00	Tea Break			
11:00-12:00	Gravitational-Wave Astrophysics and Cosmology	Hyung-Mok Lee (Seoul National U)	Ye-Ling Zhou	
12:00-14:30	Lunch Break			
14:30-14:45	A Complex Window-Based Joint-Chirp-Rate-Time-Frequency Transform for BBH Merger Gravitational Wave Signal Detection	Xiyuan Li (U of Western Ontario)	Yong Zhou	
14:45-15:00	Void Lensing in Cubic Galileon Gravity	Chen Su(SHAO)		
15:00-15:15	Emergent Gravity from the Entanglement Structure in Group Field Theory	Jinglong Liu (Fudan U)		
15:15-15:30	The scrambling power of gravity for black hole radiation	Xuan-Lin Su(Fudan U)		
15:30-15:45	Minimally modified gravity with auxiliary constraints formalism	Zhi-Bang Yao (Sun Yat-sen U)		
15:45-16:00	Gravitational Waves from Primordial Black Hole Inspiralling inside Compact Star: Novel Probe for Dense Matter Equation of State	Ze-Cheng Zou (Nanjing U)		
16:00-16:30	Tea Break			
16:30-16:45	Energy efficiency in spacetime of axially symmetric magnetized Reissner-Nordström black hole	Sanjar Shaymatov (Zhejiang U of Technology)		
16:45-17:00	Thermodynamics and weak cosmic censorship conjecture for Kerr-Newman Taub-NUT black hole	Si-Jiang Yang (Lanzhou University)	Zhen-Ming Xu	
17:00-17:15	Quantum Critical Magnetocaloric Effect in Holography	Jun-Kun Zhao(ITP, CAS)		
17:15-17:30	Gravito-Electromagnetic coupled perturbations and quasinormal modes of a charged black hole with scalar hair	Wen-Di Guo (Lanzhou University)		
17:30-17:45	Black hole interiors in holographic topological semimetals	Hongda Lyu (Beihang U)		
17:45-18:00	Generalized Volume-Complexity for RN-AdS Black Hole	Mengting Wang (Lanzhou U)		
18:00-19:30	Dinner			

周四 THU/MAY 18

时间 Time	内容 Title	报告人 Speakers	Chairs
08:30-09:30	Black Hole Chemistry (3)	Robert Mann (Perimeter Institute)	Chao Niu
09:35-10:30	Black Hole Chemistry (4)	Robert Mann (Perimeter Institute)	
10:30-11:00	Tea Break		
11:00-12:00	Cosmology of dilatonic Gauss-Bonnet gravity	Bum-Hoon Lee (Sogang University)	Shou-Long Li
12:00-14:30	Lunch Break		
14:30-16:00	Free Discussion		
16:00-18:00	Free Discussion		
18:00-19:30	Dinner		

周五 FRI/MAY 19

时间 Time	内容 Title	报告人 Speakers	Chairs
08:30-09:30	Black holes in Einstein-Maxwell and Yang-Mills theories (3)	Sang Pyo Kim (Kunsan National U)	Jia-Hui Huang
09:35-10:30	Black holes in Einstein-Maxwell and Yang-Mills theories (4)	Sang Pyo Kim (Kunsan National U)	
10:30-11:00	Tea Break		
11:00-12:00	An Alternative Method to WKB Approximations and Its Applications to Cosmology and Gravitational Wave Physics	Anzhong Wang (Baylor University)	Tao Zhu
12:00-14:30	Lunch Break		
14:30-15:30	Overview of extra dimensions	Yu-Xiao Liu (Lanzhou U)	Hong-Bo Jin
15:30-16:30	New horizon of gravitational wave based on pulsars by FAST telescope	Chengmin Zhang (NAOC & UCAS)	
16:30-17:00	Tea Break		
17:00-18:00	Particles and fields on the de Sitter universe	Ugo Moschella (INFN, Milan)	Rong-Jia Yang
18:00-19:30	Dinner		

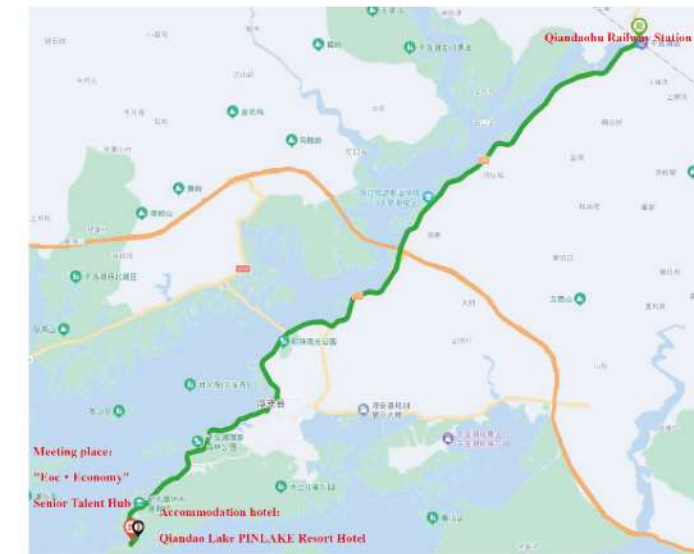
周六 SAT/MAY 20

时间 Time	内容 Title	报告人 Speakers	Chairs
08:30-09:00	The effect of the gravitational constant variation on the propagation of gravitational wave	Zhoujian Cao (Beijing Normal U)	Yong Tang
09:00-09:30	Gravitational waves from cosmological phase transitions	Yun Jiang (Sun Yat-sen U)	
09:30-10:00	Radiative symmetry breaking, cosmic strings and observable gravity waves in $U(1)R$ symmetric $SU(5) \times U(1)_X$	Waqas Ahmed (Hubei Polytechnic U)	
10:00-10:30	Tea Break		
10:30-11:00	Test the theory of gravity with space gravitational wave detectors	Wenbiao Han (SHAO, CAS)	Jun Zhang
11:00-11:30	Elementary cells of quantum spacetime: From loop representation of Yang-Mills gauge theory to quantum twisted geometry	Gaoping Long (Jinan University)	
11:30-12:00	Constraints on an axionlike particle from black hole spin superradiance	Shoushan Bao (Shandong U)	
12:00-14:30	Lunch Break		
14:30-15:00	Atomic transitions as ultra-high sensitivity probes for testing fundamental symmetries and quantum foundations	Antonino Marciano (Fudan U)	Xiao-Mei Kuang
15:00-15:30	Pinning peak and goldstone modes in holography	Wei-Jia Li (Dalian U of Technology)	
15:30-16:00	Entanglement islands in a braneworld model of massless gravity	Rong-Xin Miao (Sun Yat-Sen U)	
16:00-16:30	Tea Break		
16:30-17:00	Non-Markovianity in cosmology	Jen-Tsung Hsiang (National Central U)	Jun Nian
17:00-17:30	On holographic time-like entanglement entropy	Run-Qiu Yang (Tianjin U)	
17:30-18:00	PEE aspects of entanglement island from bit threads	Jia-Rui Sun (Sun Yat-Sen U)	
18:00-19:30	Dinner		

周日 SUN/MAY 21

时间 Time	内容 Title	报告人 Speakers	Chairs
08:30-09:00	Primordial black holes in the presence of WIMPs	Kenji Kadota(HIAS-UCAS)	Shao-Qi Hou
09:00-09:30	Topology of timelike circular orbit in black hole backgrounds	Shao-Wen Wei(Lanzhou U)	
09:30-10:00	Thermodynamic equation of state and phase transitions for the spacetime of Friedmann-Robertson-Walker universe	Ya-Peng Hu (Nanjing U of Aeronautics and Astronautics)	
10:00-10:30	Tea Break		
10:30-11:00	On the uniqueness of Λ CDM-like evolution for homogeneous and isotropic cosmology in General Relativity	Daniele Gregoris (Jiangsu UST)	Yun-Long Zhang
10:00-11:30	Is there a Hubble-variation tension?	Shao-Jiang Wang(ITP-CAS)	
11:30-12:00	Closing Remarks	Sang Pyo Kim (Kunsan National U)	
12:00-14:30	Lunch Break		
14:30-16:00	Free Discussion		
16:00-18:00	Free Discussion		
18:00-19:30	Dinner		

DISTANCE DESCRIPTION



Surrounding Introduction

(1) Qiantaohu PIN-LAKE Resort Hotel to "Eoc·Economy" Senior Talent Hub is about 5 minutes.

(2) Qiantaohu Railway Station to APSW-GC Accommodation is about 33 km, and driving for about 45 minutes.

(3) Hangzhou Xiaoshan International Airport to APSW-GC Accommodation is about 197km which might take 3-hour driving.

TRAVEL ROUTE RECOMMENDATION

Traveling through high-speed railway:

Current city --> Qiantaohu Railway Station --> APSW-GC Accommodation

Traveling through air flights:

Here are some recommended transfer routes (please note the time required for local transportation)

- Current city --> Hangzhou Xiaoshan International Airport-->Hangzhoudong Railway Station--> Qiantaohu Railway Station --> APSW-GC Accommodation
- Current city --> Shanghai Hongqiao International Airport -->Shanghai Hongqiao Railway Station --> Qiantaohu Railway Station --> Meeting place
- Current city --> Nanjing Lukou International Airport -->Nanjingnan Railway Station --> Qiantaohu Railway Station --> APSW-GC Accommodation