

# The 2<sup>nd</sup> International Workshop on Physics at High Baryon Density (PHD2025)



Institute of Particle Physics  
粒子物理研究所

**Physics at High Baryon Density (PHD2025)**  
<https://indico.ihep.ac.cn/event/25334>

College of Physical Science and Technology  
Central China Normal University, Wuhan  
October 16–18, 2025



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### Organizing Committee:

**Heng-Tong Ding** (Central China Normal University)

**Weijie Fu** (Dalian University of Technology)

**Defu Hou** (Central China Normal University)

**Sophia Han** (T. D. Lee institute, Shanghai Jiao Tong University)

**Xiaofeng Luo** (Central China Normal University, **co-Chair**)

**Guoliang Ma** (Fudan University)

**Zebo Tang** (University of Science and Technology of China)

**Chi Yang** (Shandong University)

**Pengfei Zhuang** (Tsinghua University, **co-Chair**)

**Yapeng Zhang** (Institute of Modern Physics, CAS)

### Venue:

- Workshop venue:  
Day 1, 2 @ Conference room at 1<sup>st</sup> floor of  
Guiyuan Hotel, CCNU  
Day 3 @ No. 9 Teaching Building, Room 409
- Accommodation : Guiyuan Hotel  
*152 Luoyu Road, Hongshan District  
Wuhan 430079, Hubei, China*



## Scientific Program

Day 1, 2 [Conference Room at 1<sup>st</sup> floor of Guiyuan Hotel]

Day 3 [No. 9 Teaching Building, Room 409]

### Day 1 (Thursday, October 16)

#### Session 1.

**Chair: Enke Wang**

08:20-08:40 **Welcome Speech & Photo**

08:40-09:10 Frithjof Karsch  
*“Constraining the location of a critical point using Taylor series expansions”*

09:10-09:40 Jan Martin Pawłowski  
*“The QCD phase structure at finite density: Facts & Fiction”*

09:40-10:10 Peter Senger  
*“Exploring dense baryonic matter in the laboratory”*

10:10-10:40 **Coffee Break**

#### Session 2.

**Chair: Nu Xu**

10:40-11:10 Joachim Stroth  
*“Selected results from HADES heavy-ion program”*

11:10-11:40 Xionghong He  
*“The Status of CEE experiment”*

11:40 -12:10 Yige Huang  
*“Probing the QCD Critical Point through (Net-)Proton Fluctuations at RHIC”*

12:10-13:30 **Lunch Break (Guiyuan)**



### Session 3.

**Chair: Pengfei Zhuang**

- 13:30-14:00 Sourendu Gupta  
*“Chiral Effective Theory and understanding the QCD phase diagram quantitatively”*
- 14:00-14:30 Kenji Fukushima  
*“Neutron stars vs. quark stars: how can they be distinguished?”*
- 14:30-15:00 Hai-Cang Ren  
*“Strong Coupling Expansion of Gluodynamics on a Lattice under Rotation”*
- 15:00-15:30 Xu-Guang Huang  
*“QCD phase structure under rotation and acceleration”*
- 15:30-16:00 **Coffee Break**

### Session 4.

**Chair: Qiang Zhao**

- 16:00-16:30 Zebo Tang  
*“Search for baryon junction with heavy ion collisions at RHIC energies”*
- 16:30-17:00 Koichi Murase  
*“Light-nuclei production and femtoscopy”*
- 17:00-17:30 Yudai Ichikawa  
*“Femtoscopy at J-PARC”*
- 17:30-17:55 Kehao Zhang  
*“Baryon Correlations and Strange Di-baryon Search at RHIC-STAR”*
- 18:30-21:30 **Workshop Banquet**



## Day 2 (Friday, October 17)

### Session 5.

**Chair: ShinIchi Esumi**

- 08:40-09:10 Yue-Hang Liang  
*“Beam-energy Dependence of the Light- and Hyper-Nuclei Production and Directed Flow in Au+Au Collisions at RHIC”*
- 09:10-09:40 Like Liu  
*“Recent Results on Flow Measurements at RHIC”*
- 09:40-10:10 Shunji Nishimura  
*“A Possible Study of Collective Flows in Low-Energy Collisions of Deformed Nuclei”*
- 10:10-10:40 **Coffee Break**

### Session 6.

**Chair: Yuxin Liu**

- 10:40-11:10 Heng-Tong Ding  
*“Search for the QCD Critical Endpoint at a Low Temperature from Lattice QCD”*
- 11:10-11:40 Fei Gao  
*“QCD phase structure at very high baryon density”*
- 11:40-12:10 Yong-Liang Ma  
*“Manifestation of scale symmetry in dense nuclear matter”*
- 12:10-14:00 **Lunch Break (Guiyuan, 桂苑桌餐)**



## Session 7.

### Chair: Yifei Zhang

- 14:00-14:30 Hirokazu Tamura  
*“Study of high-density matter in neutron stars via hypernuclear experiments ”*
- 14:30-15:00 Yuxiang Zhao  
*“Hyperon-Nucleon Spectrometer at HIAF”*
- 15:00-15:30 Qian Wang  
*“Novel Approaches to the Internal Structure of Exotic Hadrons”*
- 15:30-15:55 Vinh Lung  
*“Residual 3rd-body Coulomb Effect on Identical Charged Pion Correlations in Au+Au Collisions at STAR”*
- 15:55-16:15 **Coffee Break**

## Session 8.

### Chair: Qinghua Xu

- 16:15-16:45 Zhigang Xiao  
*“Probing the short range correlation of nucleons in nuclei by Bremsstrahlung gamma rays in heavy ion collisions”*
- 16:45-17:15 Subhash Singha  
*“Measurement of Global Spin Polarization at RHIC”*
- 17:15-17:45 Kai-Jia Sun  
*“Global Proton Spin Polarization at High Baryon Densities”*
- 17:45-18:15 Pok-man Lo  
*“In-medium effects from S-matrix”*
- 18:30-21:30 Dinner at Xiao Guan Yuan (小观园)



## Day 3 (Saturday, October 18)

[No. 9 Teaching Building, Room 409]

### Session 9.

**Chair: Defu Hou**

- 08:40-09:10 Toru Kojo  
*“A quarkyonic matter model with strangeness”*
- 09:10-09:40 Shuzhe Shi  
*“Toward constraining QCD phase transitions in neutron star interiors”*
- 09:40-10:10 Weiyao Ke  
*“Viscosity of dense and cold nuclear matter”*
- 10:10-10:40 **Coffee Break**

### Session 10.

**Chair: Guo-Liang Ma**

- 10:40-11:10 Yingjie Zhou  
*“Recent STAR results on strangeness production in heavy-ion collisions”*
- 11:10-11:40 Yicheng Feng  
*“Overview of the chiral magnetic effect and outlook to the STAR high-statistical new data”*
- 11:40-12:10 Guojun Huang  
*“Baryon Density-Driven Novel Phases in QCD: Resonant Screening, Rotation-Induced Confinement, and Quantum Criticality”*
- 12:10-12:30 **Closing Remarks**

**Adjourn**



# Timetable

Day 1 (Thursday, October 16)		Day 2 (Friday, October 17)		Day 3 (Saturday, October 18)	
08:20-08:40	Opening speech&Photo				
08:40-10:10	Session 1	08:40-10:10	Session 5	08:40-10:10	Session 9
10:10-10:40	Coffee Break	10:10-10:40	Coffee Break	10:10-10:40	Coffee Break
10:40-12:10	Session 2	10:40-12:10	Session 6	10:40-12:10	Session 10
12:10-13:30	Lunch Break (桂苑自助餐)	12:10-14:00	Lunch Break (Gui Yuan)	12:10-12:30	Closing Remarks
13:30-15:30	Session 3	14:00-15:55	Session 7		
15:30-16:00	Coffee Break	15:55-16:15	Coffee Break		
16:00-17:55	Session 4	16:15-18:15	Session 7		
18:30-21:30	Workshop Banquet	18:30-21:30	Dinner at Xiao GuanYuan		

**Workshop Secretary** : Youquan Qi, Yicheng Feng, Ya Ma

**Service Team** : Xiao Hu, Xuanhong He, Boyang Fu, Luyao Liu, Siyi Li, Mengjia Tian, Xuan Wang, Yixiao Wang, Zhongyan Wu, Kaijie Zhang, Rui Zhang, Tiandong Zhang, Zhaohui Wang, Mijia Yang, Kehao Zhang, Chenghao Zhu



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# CCNU MAP





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# Notes



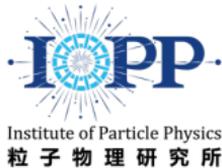
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Central China Normal University, Wuhan**

**华中师范大学物理科学与技术学院**

**Institute of Particle Physics (IOPP)**

**粒子物理研究所**

**Key Laboratory of Quark and Lepton Physics (CCNU)  
Ministry of Education, China**

**夸克与轻子教育部重点实验室**

