Institute of Particle Physics
粒子物理研究所

Central China
Center for Nuclear Theory
华中核理论中心

第一性原理核理论前沿研讨会
C3NT Workshop on Frontiers of ab initio Nuclear Theory



Nov. 22 - Dec. 5, 2026
Room 409, Building 9, CCNU, Wuhan, China
https://indico.ihep.ac.cn/event/26743/

Campus Map


主校区北门
Main Campus North Gate
華中師範大學
CENTRAL CHINA NORMAL UNIVERSITY
N
北区食堂
North Canteen
西门
West Gate
广埠屯站 A出口
Guangbutun / Line 2 / Exit A
校医院
Campus Hospital
超市
Supermarket
银行 / ATM
Bank / ATM
ICBC / BC
Conference Venue
会议会场 · 9号楼物理学院
Building 9, College of Physics
桂苑宾馆
Guiyuan Hotel
桂香园
Guixiangyuan Restaurant
超市
Supermarket
沁园春 / 小观园（5楼）
Qinyuanchun / Xiaoguanyuan (5F)
东门
East Gate
东一食堂
Dongyi Canteen
学子餐厅
Xuezi Restaurant
南门
South Gate
东二食堂（负一楼清真）
Dong'er Canteen
Halal dining: B1
虎泉站
Huquan Station
南湖校区北门
Nanhu Campus North Gate
南二餐厅
Nan'er Restaurant
南湖食堂
Nanhu Canteen
餐厅 Restaurant
地铁 Metro
超市 Supermarket
校门 Campus Gate
银行 Bank
宾馆 Hotel
校医院 Campus Hospital
会场 Conference Venue

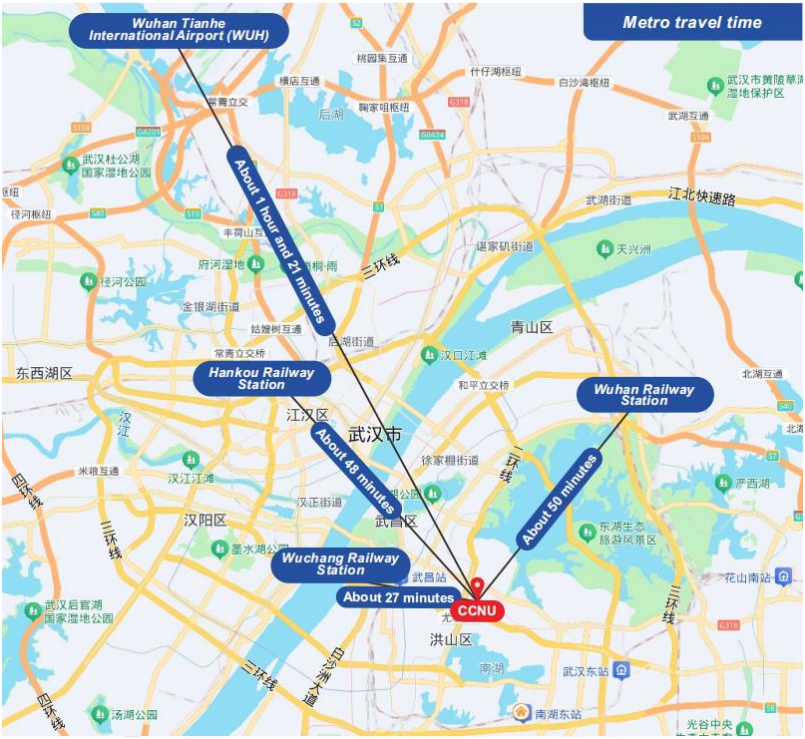
Travel Guidance to CCNU

Taxi: Please navigate to the North Gate of CCNU
请带我去华中师范大学北门

Wuhan Tianhe International Airport (WUH): Take Metro Line 2, get off at Guangbutun Station then follow the signs for exit A

Wuhan Railway Station/ Wuchang Railway Station: Take Metro Line 4, get off at Zhongnan Road Station and transfer to Line 2, get off at Guangbutun Station

Hankou Railway Station: Take Metro Line 2, get off at Guangbutun Station



Contacts

水湘玉 Xiangyu Shui: xiangyushui@ccnu.edu.cn (+86 17764193969)

尹鹏 Peng Yin: pengyin@iastate.edu

General Information

Venue Location:

Building 9, Room 409, CCNU

Registration:

Nov. 22nd 14:30 - 18:00, Guiyuan Hotel

Nov. 23rd 8:00 - 8:50, Building 9, Room 409

Accommodation:

GuiYuan Hotel (桂苑宾馆)

Location: No.152 Luoyu Road, Hongshan District, Wuhan, Hubei, 430079, China

Front Desk Phone Number: **+86-27-67863418**

Check-in: 24-hour front desk

Breakfast: GuiYuan Hotel 1st Floor (Time: 7:00 - 9:00)

The latest check-out time: 14:00

Dining Locations:

Breakfast: GuiYuan 1st floor

Lunch: School Canteens (using dining card)

Nov. 26th dinner: Hujin Restaurant Yellow Crane Tower (湖锦酒楼黄鹤楼店)

Dec. 3rd dinner: Xiaoguanyuan Restaurant, on the 5th floor of Qinyuanchun Cafeteria, CCNU（小观园，华师沁园春食堂五楼）

Wi-Fi:

Username: iopp1/ iopp2 Password: 12345678

Schedule

Location: Building 9, 409, CCNU
Nov. 22 - Dec. 5, 2026

Monday, November 23, 2026 WEEK 1 / 2026	
MORNING SESSION Chair: Giuseppina Orlandini | University of Trento	
8:50 AM - 9:00 AM	**Opening and welcome - Xin-Nian Wang**
9:00 AM - 10:00 AM	***James Vary* (Iowa State University) -** Ab Initio No Core Shell Model - Progress and Plans
10:00 AM - 10:30 AM	**Group photo & Coffee break**
10:30 AM - 11:30 AM	***Petr Navratil* (TRIUMF) -** Ab Initio Theory of Nuclear Structure and Reactions
11:30 AM - 2:00 PM	**Break / lunch**
AFTERNOON SESSION Chair: Andrey Shirokov | Moscow State University	
2:00 PM - 3:00 PM	***Lisheng Geng* (Beihang University) -** Relativistic chiral nuclear forces: status and prospect
3:00 PM - 4:00 PM	***Baishan Hu* (Peking University) -** Chiral N^3LO_{Texas} : Towards more accurate nuclear interactions
4:00 PM - 4:30 PM	**Coffee break**
4:30 PM - 5:30 PM	***Discussion led by: Ulf-G. Meißner | University of Bonn / Forschungszentrum Jülich -*** Discussion session for today's talks and open microphone for memorial contributions for Igal Talmi and Jerry Draayer.

Tuesday, November 24, 2026 WEEK 1 / 2026	
MORNING SESSION **Chair: Roman Skibiński | Jagiellonian University**	
9:00 AM - 10:00 AM	***Ulf-G. Meißner* (University of Bonn / Forschungszentrum Jülich) -** Recent progress in NLEFT
10:00 AM - 10:30 AM	**Coffee break**
10:30 AM - 12:00 PM	**IOPP Colloquium - *Zhi-Zhong Xing* (Institute of High Energy Physics, Chinese Academy of Sciences)**
12:00 PM - 2:00 PM	**Break / lunch**
AFTERNOON SESSION **Chair: Bo Zhou | Fudan University**	
2:00 PM - 3:00 PM	***Evgeny Epelbaum* (Ruhr-Universität Bochum) -** Chiral EFT for nuclear interactions: Recent developments
3:00 PM - 4:00 PM	***Hooi Jin Ong* (Institute of Modern Physics, Chinese Academy of Sciences) -** Understanding Tensor-Force Effect in Nuclear Structure
4:00 PM - 4:30 PM	**Coffee break**
4:30 PM - 5:30 PM	***Discussion led by: Petr Navratil* | *TRIUMF* -** Discussion session
Wednesday, November 25, 2026 **WEEK 1 / 2026**	
MORNING SESSION **Chair: Winfried Leidemann | University of Trento**	
8:30 AM - 9:30 AM	***Furong Xu* (Peking University)** - Ab initio calculations for nuclei as open quantum systems

9:30 AM - 10:30 AM	***Nadezda Smirnova* (LP2IB-University of Bordeaux) -** Ab-initio shell model for the sd shell
10:30 AM - 11:00 AM	**Coffee break**
11:00 AM - 12:00 PM	***Luigi Coraggio* (Università degli studi della Campania "Luigi Vanvitelli" - Sezione INFN di Napoli) -** Nuclear shell model for BSM physics
12:00 PM - 2:00 PM	**Lunch**
AFTERNOON SESSION **Chair: Pengwei Zhao | Peking University**	
2:00 PM - 3:00 PM	***Takayuki Miyagi* (University of Tsukuba) -** Nuclear ab initio calculations for astrophysical applications
3:00 PM - 4:00 PM	***Yuan-ming Xing* (Institute of Modern Physics, Chinese Academy of Sciences) -** Mass measurements of short-lived nuclides at storage ring and the ab-initio calculations
4:00 PM - 4:30 PM	**Coffee break**
4:30 PM - 5:30 PM	***Discussion led by: James Vary | Iowa State University -*** Discussion session
Thursday, November 26, 2026 **WEEK 1 / 2026**	
MORNING SESSION **Chair: Xiangxiang Sun** **Institute of Theoretical Physics, Chinese Academy of Sciences**	
9:00 AM - 10:00 AM	***Takaharu Otsuka* (University of Tokyo / RIKEN Nishina Center) -** Nuclear forces and nuclear collectivities
10:00 AM - 10:30 AM	**Coffee break**

10:30 AM - 11:30 AM	***Jianguo Li* (Institute of Modern Physics, Chinese Academy of Sciences) -** Semistochastic heat-bath configuration interaction with ab initio valence-space Hamiltonians
11:30 AM - 2:00 PM	**Break / lunch**
AFTERNOON SESSION **Chair: Peter Love | University of Toronto**	
2:00 PM - 3:00 PM	***Xiulei Ren* (Shandong University) -** NN interaction from covariant chiral effective field theory
3:00 PM - 4:00 PM	***He Li* (Institute of Modern Physics, Chinese Academy of Sciences) -** Nuclear Magicity and Collectivity from Ab Initio No-Core Shell Model Calculations
4:00 PM - 4:30 PM	**Coffee break**
4:30 PM - 5:30 PM	***Discussion led by: Furong Xu | Peking University -*** Discussion session
6:30 PM - 8:30 PM	**Group dinner**
Friday, November 27, 2026 **WEEK 1 / 2026**	
MORNING SESSION **Chair: Xiulei Ren | Shandong University**	
9:00 AM - 10:00 AM	***Pengwei Zhao* (Peking University) -** Deep-Neural-Network Approach to Solving the Ab Initio Nuclear Structure Problem
10:00 AM - 10:30 AM	**Coffee break**
10:30 AM - 11:30 AM	***Vladimir Karmanov* (Lebedev Physical Institute, Russian Academy of Sciences) -** Restoration of rotational symmetry in light-front dynamics
11:30 AM - 2:00 PM	**Lunch**

AFTERNOON SESSION **Chair: Dong Bai | Hohai University**	
2:00 PM - 3:00 PM	***Peter Love* (*University of Toronto*) -** Renormalized light front Hamiltonians and Quantum Simulation
3:00 PM - 4:00 PM	***Xingbo Zhao* (*Institute of Modern Physics, Chinese Academy of Sciences*) -** Nucleon structure from light-front Hamiltonian approach
4:00 PM - 4:30 PM	**Coffee break**
4:30 PM - 5:30 PM	***Discussion led by: Takaharu Otsuka | University of Tokyo / RIKEN Nishina Center -*** Discussion session
Monday, November 30, 2026 **WEEK 2 / 2026**	
MORNING SESSION **Chair: Jason Holt | TRIUMF**	
9:00 AM - 10:00 AM	***Giuseppina Orlandini* (*University of Trento*) -** A New Investigation of the ^{4}He Isoscalar Monopole Resonance
10:00 AM - 10:30 AM	**Group photo & Coffee break**
10:30 AM - 11:30 AM	***Winfried Leidemann* (*University of Trento*) -** Nonrelativistic ab initio calculation of inelastic electron scattering and importance of relativistic effects
11:30 AM - 2:00 PM	**Break / lunch**
AFTERNOON SESSION **Chair: He Li | Institute of Modern Physics, Chinese Academy of Sciences**	
2:00 PM - 3:00 PM	***Weijie Du* (*Institute of Modern Physics, Chinese Academy of Sciences*) -** Advances in ab initio nuclear many-body calculations via quantum computing
3:00 PM - 4:00 PM	***Chen Ji* (*Central China Normal University*) -** Nuclear structure effects to spectroscopy in hydrogen-like atoms

4:00 PM - 4:30 PM	**Coffee break**
4:30 PM - 5:30 PM	***Discussion led by: Pengwei Zhao | Peking University -*** Discussion session
Tuesday, December 1, 2026 C3NT Symposium	
**Suggested presentation timing **40-minute slot: 30-minute presentation + 10 minutes for questions 20-minute slot: 15-minute presentation + 5 minutes for questions	
MORNING SESSION 1 Chair: Weijie Du |Institute of Modern Physics, Chinese Academy of Sciences	
9:00 AM - 9:40 AM	***Bingwei Long (Sichuan University) -*** Perturbative-pion interaction
9:40 AM - 10:20 AM	***Ligang Cao (Beijing Normal University) -*** Quenching of the axial-vector coupling constant g_A in beta decay: Joint effects from chiral two-body currents and many-body correlations
10:20 AM - 10:50 AM	**Coffee break**
MORNING SESSION 2 Chair: Danyang Pang | Beihang University	
10:50 AM - 11:30 AM	***Simin Wang (Fudan University) -*** Exotic phenomena in open quantum systems
11:30 AM - 12:10 PM	***Filippo Fornetti (Institute of Modern Physics, Chinese Academy of Sciences) -*** The EMC effect within light-front Hamiltonian dynamics for few-nucleon bound systems
12:10 PM - 2:00 PM	**Lunch**

AFTERNOON SESSION 1 **Chair: Mamoon Sharaf | Institute of Modern Physics, Chinese Academy of Sciences**	
2:00 PM - 2:40 PM	***Haoyu Shang* (Fudan University) -** ab initio studies of nuclear short-range correlations
2:40 PM - 3:00 PM	***Qing-Yu Zhai* (Beihang University) -** Relativistic Spin-Orbit Dynamics in the Neutron-Deuteron Analyzing-Power Puzzle
3:00 PM - 3:20 PM	***Duo-Lun Ge* (Beihang University) -** Relativistic three-body calculations of proton–deuteron elastic scattering using a significantly faster numerical method
3:20 PM - 3:50 PM	**Coffee break**
AFTERNOON SESSION 2 **Chair: Zhen Li | Technical University of Darmstadt**	
3:50 PM - 4:10 PM	***Congwu Wang* (Fudan University / Ruhr University Bochum) -** Persistent state method for determining resonance poles
4:10 PM - 4:30 PM	***Linhai Chen* (Sun Yat-sen University) -** Convergence of Many-Body Truncations in the In-Medium Similarity Renormalization Group
4:30 PM - 4:50 PM	***Weijia Kong* (Beihang University) -** Nd Scattering with N2LO 3NF Using Faddeev-AGS Equations and Light-Ion Reactions with the Resonating Group Method
Wednesday, December 2, 2026 **WEEK 2 / 2026**	
MORNING SESSION **Chair: Chen Ji | Central China Normal University**	
9:00 AM - 10:00 AM	***Jason Holt* (TRIUMF) -** Ab initio theory for beyond standard model physics searches
10:00 AM - 10:30 AM	**Coffee break**

10:30 AM - 11:30 AM	***Olga Rubtsova (Lomonosov Moscow State University) -*** Discretization of Continuum for Few-Body Problems
11:30 AM - 12:00 PM	***Discussion led by: Francesca Sammarruca | University of Idaho -*** Discussion session
12:00 PM	**Lunch**
2:00 PM - 6:00 PM	**Excursion / free discussions**
Thursday, December 3, 2026 WEEK 2 / 2026	
MORNING SESSION Chair: Francesca Sammarruca | University of Idaho	
9:00 AM - 10:00 AM	***Andrey Shirokov (Moscow State University) -*** **Neural networks and ab initio calculations**
10:00 AM - 10:30 AM	**Coffee break**
10:30 AM - 11:30 AM	***Aleksandr Mazur (Danilovskiy Pacific National University) -*** Study of resonances in the ^{6}He nucleus based on ab initio calculation
11:30 AM - 2:00 PM	**Break / lunch**
AFTERNOON SESSION Chair: Peng Yin | Henan University of Science and Technology	
2:00 PM - 3:00 PM	***Dong Bai (Hohai University) -*** Spin teleportation of protons at the MeV scale
3:00 PM - 4:00 PM	***Zhen Li (Technical University of Darmstadt) -*** Ab initio calculations of weak process in atomic nuclei
4:00 PM - 4:30 PM	**Coffee break**
4:30 PM - 5:30 PM	***Discussion led by: Giuseppina Orlandini | University of Trento -*** Discussion session
6:30 PM - 8:30 PM	**Group dinner**

Friday, December 4, 2026 WEEK 2 / 2026	
MORNING SESSION **Chair: Olga Rubtsova | Lomonosov Moscow State University**	
9:00 AM - 10:00 AM	***Roman Skibiński (Jagiellonian University) -*** Towards description of electron-deuteron scattering with consistent relativistic forces and currents.
10:00 AM - 10:30 AM	**Coffee break**
10:30 AM - 11:30 AM	***Francesca Sammarruca (University of Idaho) -*** Ab initio nuclear theory in the era of multi-physics constraints
11:30 AM - 2:00 PM	**Break / lunch**
AFTERNOON SESSION **Chair: Xingbo Zhao | Institute of Modern Physics, Chinese Academy of Sciences**	
2:00 PM - 3:00 PM	***Peng Yin (Henan University of Science and Technology) -*** Nuclear electromagnetic properties with the ab initio no-core shell model
3:00 PM - 4:00 PM	***Mamoon Sharaf (Institute of Modern Physics, Chinese Academy of Sciences) -*** Ab initio neutron-alpha scattering using the Efros method
4:00 PM - 4:30 PM	**Coffee break**
4:30 PM - 5:20 PM	***Discussion led by: Winfried Leidemann | University of Trento -*** Discussion session
5:20 PM - 5:30 PM	**Closing remarks**

Website: https://indico.ihep.ac.cn/event/26743/

C3NT Website: https://c3nt.ccnu.edu.cn/

Email: c3nt@ccnu.edu.cn

Organizing Committee

James P. Vary	Chair, Iowa State University
Evgeny Epelbaum	Ruhr-Universität Bochum
Andrey M. Shirokov	Lomonosov Moscow State University
Takaharu Otsuka	The University of Tokyo
Giuseppina Orlandini	University of Trento
Jaume Carbonell	Laboratoire De Physique Des 2 Infinite Irène Joliot-Curie
Furong Xu 许甫荣	Peking University
Lisheng Geng 耿立升	Beihang University
Jiangming Yao 尧江明	Sun Yat-sen University
Chen Ji 计晨	Central China Normal University
Xingbo Zhao 赵行波	Institute of Modern Physics, Chinese Academy of Sciences
Xiulei Ren 任修磊	Shandong University
Peng Yin 尹鹏	Henan University of Science and Technology

Introduction to C3NT

Mission:

The Central China Center for Nuclear Theory (C3NT) in the Institute of Particle Physics (IOPP) at the Central China Normal University (CCNU) is designed to provide an open environment that is conducive for cutting-edge research and collaboration in the forefront of nuclear theory and phenomenology with close contact with experiments. These areas of research will cover:

- Nuclear structure
- Nuclear matter under extreme conditions
- Hadron physics
- Nuclear astrophysics and fundamental symmetry
- Quantum computing and AI in nuclear physics

Located in the city of Wuhan at the heart of mainland China with convenient and direct connections to many cities throughout China and Asia, the Center serves as a platform for exchange of new ideas, theoretical and numerical tools with short and long workshops, encouraging collaboration with focused program and training of young scientists with the annual Huada School on QCD. With diverse and vigorous local research programs in IOPP and participating institutions, the Center will also be a hub for regional collaboration among members of participating institutions fermented through the interaction with the international community at the Center.

Programs:

Programs will be selected by the Board of Directors from proposals solicited through annual calls for proposals. Short workshops can be submitted and approved throughout the year based on interest and programs committed for the current year.

Long workshops: Workshops for up to three weeks on selected topics of current interest. Participants are by invitation only selected by the organizers and are required to stay for at least one week. Ample time will be set aside for discussions and collaboration with only several talks each day. The workshop can have a one-day symposium during the program highlighting the work of participants.

Short workshops: Workshops for a few days on topics of current and urgent interest. Participants are by invitation only selected by the organizers.

Huada School on QCD: An annual school which aims to provide basic training in strong interaction physics and related areas for graduate students, postdocs and young researchers in the field of high-energy nuclear and particle physics. The school is normally limited to about 60 participants and focuses on a selected theme each year.

Regional Meetings: The Center will host one or two regional meetings each year to promote regional collaborations and exchange.

C3NT Committee & Admin

Administration

Director: Xin-Nian Wang

Deputy Directors:

Weiyao Ke, Long-Gang Pang

Scientific Secretary:

Qiang Yuan, Xiangyu Shui

Board of Directors (alphabetically)

The Board selects and approves proposals for programs submitted to the Center. The Board is also invited to give advice on the Huada School on QCD, local research programs in nuclear theory and other activities at the Center.

- Gert Aarts (Swansea, UK)
- Fengkun Guo (ITP, CN)
- Tetsufumi Hirano (Sophia U, JP)
- Su Houng Lee (Yonsei U, KR)
- Guy Moore (TU Darmstadt, DE)
- Huichao Song (PKU, CN)
- Werner Vogelsang (Tuebingen, DE)
- Urs Wiedemann (CERN, CH), Chair
- Furong Xu (PKU, CN)

Scientific Advisory Committee

Members of the Committee are invited to participate in future programs at the Center and provide advice on the topic of the future workshops, schools and the local research activities.

- Sinya Aoki (Kyoto U, JP)
- Jean-Paul Blaizot (Saclay, FR)

- Ronggeng Cai (NBU, CN)
- Elena González Ferreiro (USC, ES)
- Kenji Fukushima (U Tokyo, JP)
- Sourendu Gupta (TIFR, IN)
- Frithjof Karsch (Bielefeld, DE)
- Zuo-tang Liang (SDU, CN)
- Yeunhwan Lim (Yonsei, KR)
- Huey-Wen Lin (MSU, US)
- Weiping Liu (SUSTech, CN)
- Maria Paola Lombardo (INFN Florence, IT)
- Ming-xing Luo (Beijing CSRC, CN)
- Boqiang Ma (ZZU, CN)
- Yugang Ma (ECNU, CN), Chair
- Larry McLerran (UW, US)
- Ulf-G. Meissner (U Bonn, DE)
- Jie Meng (PKU, CN)
- Berndt Mueller (Duke, US)
- Krishna Rajagopal (MIT, US)
- Michael Ramsey-Musolf (TDLI, CN)
- Krzysztof Redlich (UWR, PL)
- Zhongzhou Ren (Tongji, CN)
- Dirk Rischke (Frankfurt, DE)
- Enke Wang (SCNU, CN)
- Qun Wang (USTC, CN) co-chair
- Qiang Zhao (IHEP, CN)
- Shan-Gui Zhou (ITP, CN)
- Bingsong Zou (Tsinghua, CN)
- Pengfei Zhuang (Tsinghua, CN)

Regional Committee

Representatives from selected universities in central China for coordination of programs and collaboration.

- Wei-Tian Deng (HUST)
- Wei Dai (CUG)
- Jianyou Guo (AHU)
- Xiaohua Li (USC)
- Tan Luo (HNU)
- Chunwang Ma (Henan NU)
- Shi Pu (USTC)
- En Wang (ZZU)
- Xinyang Wang (AUST)
- Xiaonu Xiong (CSU)
- Zhi-Qing Zhang (HAUT)
- Xianhui Zhong (Hunan NU)

Central China
Center for Nuclear Theory

华中核理论中心

