



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



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**CENTRAL CHINA
CENTER FOR
NUCLEAR THEORY**

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C3NT Inaugural Symposium on Frontiers of Nuclear Theory
Central China Normal University, May 17-18, 2025

May 16		
14:00-18:00	Registration (Guiyuan Hotel Lobby & Junyi Dynasty Hotel)	
May 17		
Session I	Chair: En-ke Wang	
8:30-8:35	Welcome	
8:35-9:05	Xin-Nian Wang Sanjay Reddy Bira van Kolck	Introduction to C3NT About INT About ECT*
9:05-9:10		Ribbon-cutting ceremony
9:10-9:30	Photo and Break	
Session II	Chair: Bing-song Zou	
9:30-10:00	Urs Wiedemann	Future of heavy-ion collisions
10:00-10:30	Krzysztof Redlich	Thermodynamics of strongly interacting nuclear matter
10:30-11:00	Huichao Song	Nuclear physics across energy scales
11:00 -11:30	Break	
Session III	Chair: Ming-xing Luo	
11:30-12:00	Jean-Paul Blaizot	Heavy-ion collisions and nuclear structure
12:00-12:30	Tetsu Hirano	Dynamics of high-energy nuclear collisions
12:30 -14:00	Lunch	
Session IV	Chair: Zuo-tang Liang	
14:00-14:30	Dirk Rischke	Spin hydrodynamics
14:30-15:00	Shi Pu	Spin Physics in nuclear reaction
15:00-15:30	Su Hounq Lee	Chiral symmetry and the vector meson mass in medium
15:30 -16:00	Break	
Session V	Chair: Wei-ping Liu	
16:00-16:30	Huey-Wen Lin	Parton distributions on the lattice
16:30-17:00	Hongxi Xing	EIC Physics
Session VI	Chairs: Urs Wiedemann & Yugang Ma	
17:00 -18:00	Joint Board and SAC meeting	
18:00-20:00	Symposium dinner	
May 18		
Session I	Chair: Shan-gui Zhou	
8:30-9:00	Ulf-G Meissner	Ab initio nuclear theory on the lattice
9:00-9:30	Furong Xu	Ab initio nuclear structure theory for unstable nuclei
9:30-10:00	Li-sheng Geng	Femtoscopy and exotic hadrons
10:00-10:30	Break	
Session II	Chair: Qiang Zhao	
10:30-11:00	Craig Roberts	Emergence of Hadron Mass and Structure
11:00-11:30	Larry McLerran	Quarkyonic matter at high baryon density
11:30-12:00	Sophia Han	Dense-matter nuclear physics and astrophysics in the multi-messenger era
12:00-12:30	Longgang Pang	Machine learning in nuclear theory
12:30-14:00	Lunch	



宗旨：华中核理论中心（C3NT）依托于华中师范大学（CCNU）粒子物理研究所（IOPP），致力于营造开放的学术氛围，推动核理论与唯象学的前沿研究，并密切联系实验研究。中心的研究领域涵盖：

- 核结构
- 极端条件下的核物质
- 强子物理
- 核天体物理与基本对称性
- 核物理中的量子计算与人工智能

本中心位于中国腹地的核心城市武汉，交通便利，与中国及亚洲多座城市直接相连。C3NT旨在通过长短期研讨会、专题合作项目及年度QCD华大讲习班，促进新思想、理论及数值工具的交流，培养青年科学家，并推动国际科研合作。依托粒子物理研究所（IOPP）及其他参与机构的丰富研究资源，中心将成为区域性科研合作的重要枢纽。C3NT将凭借创新的学术机制、活跃的研究氛围及坚实的平台支持，推动核科学领域的国际前沿探索与合作。

项目遴选：由董事会从年度征集的提案中筛选。短期研讨会可根据当年研究热点灵活提交申请并审批。

长期研讨会（2周）

聚焦当前热点主题，受邀参与者至少参会一周。 每日仅安排少量报告，预留充足时间用于深入

讨论与合作，期间可设立专题研讨会，重点展示参会者的研究成果

短期研讨会（数天）

针对紧迫前沿议题，参与者由组织者邀请

QCD华大讲习班（年度）

面向高能核物理与粒子物理领域的研究生、博士后及青年学者，规模约60人，每年聚焦一个特定主题，提供强相互作用物理及相关领域的系统培训

区域会议（每年1-2次）

促进亚太地区科研合作与学术交流

研究支撑平台：粒子物理研究所（IOPP）

自1977年成立以来，IOPP长期致力高能重离子碰撞中的热密物质物理研究，现有40余位教研人员，研究领域涵盖：理论与实验粒子物理，核物理，核探测器技术与电子学，复杂系统科学。研究所深度参与多项国际大科学实验，包括：美国RHIC-STAR和欧洲LHC-ALICE/LHCb，并拥有多个重要科研平台：夸克与轻子物理教育部重点实验室，科技部夸克物质及探测技术国际合作联合中心，华中师范大学硅像素实验室（PLAC），核科学计算中心（NSC³）。

Introduction

Mission:

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

- 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 programs 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, fostered through the interaction with the international community at the Center.



Programs:

Programs are selected by the Board of Directors based on proposals submitted through annual calls. 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 two 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 that 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.

The focus of the Institution of Particle Physics (IOPP) at Central China Normal University (CCNU) has been on the physics of hot and dense matter in high-energy heavy-ion collisions since its establishment in 1977. It now has over 40 faculties engaging in a wide range of cutting-edge research covering both theoretical and experimental particle physics, nuclear physics, detector technology and electronics for nuclear physics and complex systems. We are members of the STAR Collaboration at Relativistic Heavy-Ion Collider (RHIC), ALICE and LHCb Collaboration at the Large Hadron Collider (LHC) and many other experiments in China and abroad. It is also the host to Key Laboratory for Quark and Lepton Physics of Ministry of Education (MOE), Joint Center for International Collaboration on Quark Matter and Detection Technology of Ministry of Science and Technology (MOST), Pixel Laboratory at CCNU (PLAC), Nuclear Science Computer Center at CCNU (NSC³), and Central China Center for Nuclear Theory (C3NT).

管理构架

主任：王新年
副主任：庞龙刚
秘书：袁强

理事会（按字母顺序排列）

理事会负责遴选和批准提交至中心的项目提案，并受邀为QCD华大讲习班、本地核理论研究项目及中心其他活动提供建议。

- Gert Aarts（英国斯旺西大学）
- 郭奉坤（中国理论物理研究所）
- Tetsufumi Hirano（日本上智大学）
- Suhoung Lee（韩国延世大学）
- Guy Moore（德国达姆施塔特工业大学）
- 宋慧超（中国北京大学）
- Werner Vogelsang（德国图宾根大学）
- Urs Wiedemann（瑞士欧洲核子研究中心）
- 许甫荣（中国北京大学）

科学顾问委员会

委员会成员受邀参与中心未来项目，并就未来研讨会、讲习班及本地研究活动的主题提供建议。

- Sinya Aoki（日本京都大学）
- Jean-Paul Blaizot（法国萨克莱研究所）
- 蔡荣根（中国宁波大学）
- Elena Gonzalez Ferreiro（西班牙圣地亚哥联合大学）
- Kenji Fukushima（日本东京大学）
- Sourendu Gupta（印度塔塔基础研究所）
- Frithjof Karsch（德国比勒费尔德大学）
- 梁作堂（中国山东大学）
- Yeunhwan Lim（韩国延世大学）
- Huey-Wen Lin（美国密歇根州立大学）
- 柳卫平（中国南方科技大学）

• Maria Paola Lombardo（意大利国家核物理研究所佛罗伦萨分部）

- 罗民兴（中国北京大学）
- 马伯强（中国北京大学/郑州大学）
- 马余刚（中国复旦大学）
- Larry McLerran（美国华盛顿大学）
- Ulf-G. Meissner（德国波恩大学）
- 孟杰（中国北京大学）
- Berndt Muller（美国杜克大学）
- Krishna Rajagopal（美国麻省理工学院）
- Michael Ramsey-Musolf（中国上海交大李政道研究所）

- Krzysztof Redlich（波兰弗罗茨瓦夫大学）
- 任中洲（中国同济大学）
- Dirk Rischke（德国法兰克福大学）
- 王恩科（中国华南师范大学）
- 王群（中国科学技术大学）
- 赵强（中国高能物理研究所）
- 周善贵（中国理论物理研究所）
- 庄鹏飞（中国清华大学）
- 邹冰松（中国清华大学）

区域委员会

由中国中部选定高校代表组成，负责项目协调与合作。

- 代巍（中国地质大学）
- 邓维天（华中科技大学）
- 郭建友（安徽大学）
- 李小华（南华大学）
- 罗覃（湖南大学）
- 马春旺（河南师范大学）
- 浦实（中国科学技术大学）
- 王恩（郑州大学）
- 王昕杨（安徽理工大学）
- 熊小努（中南大学）
- 张志清（河南工业大学）
- 钟显辉（湖南师范大学）

Committee & Admin

Administration

Director: Xin-Nian Wang

Deputy Director: Long-gang Pang

Scientific Secretary: Qiang Yuan

Board of Directors(Sorted 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)
- Suhoung Lee (Yonsei U., KR)
- Guy Moore (TU Darmstadt, DE)
- Huichao Song (PKU, CN)
- Werner Vogelsang (Tuebingen, DE)
- Urs Wiedemann (CERN, CH)
- 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 Gonzalez Ferreira (USC, ES)
- Kenji Fukushima (Tokyo U., JP)
- Sourendu Gupta (TIFR, IN)
- Frithjof Karsch (Bielefeld U., DE)
- Zuo-tang Liang (SDU, CN)

- Yeunhwan Lim(Yonsei U., KR)
- Huey-Wen Lin (MSU, US)
- Weiping Liu (SUSTech, CN)
- Maria Paola Lombardo (INFN Florence, IT)
- Ming-xing Luo (PKU, CN)
- Boqiang Ma (PKU/ZZU, CN)
- Yugang Ma (FDU, CN)
- Larry McLerran (UW, US)
- Ulf-G. Meissner (Bonn U., DE)
- Jie Meng (PKU, CN)
- Berndt Muller (Duke, US)
- Krishna Rajagopal (MIT, US)
- Michael Ramsey-Musolf (TDLI, CN)
- Krzysztof Redlich (UWR, PL)
- Zhongzhou Ren (TJU, CN)
- Dirk Rischke (Frankfurt U., DE)
- Enke Wang (SCNU, CN)
- Qun Wang (USTC, CN)
- Qiang Zhao (IHEP, CN)
- Shan-Gui Zhou(ITP, CH)
- Pengfei Zhuang (THU, CN)
- Bingsong Zou (THU, CN)

Regional Committee

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

- Wei Dai (CUG)
- Wei-Tian Deng (HUST)
- 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)