Programme

Frontiers of ab initio Nuclear Theory

November 22 - December 5, 2026

Central China Center for Nuclear Theory (C3NT)
Central China Normal University · Wuhan, China

TALK FORMAT

Each speaker has 60 minutes in total, including questions and discussion. We suggest allowing approximately 45-50 minutes for the presentation, with questions welcome both during and after the talk.

Programme at a glance

SUNDAY, NOVEMBER 22
Registration

WEEK 1 · NOVEMBER 23-27
Invited talks and discussion sessions

SATURDAY, NOVEMBER 28
2:00 PM - 6:00 PM | Excursion

WEEK 2 · NOVEMBER 30 - DECEMBER 4
Invited talks and discussion sessions

TUESDAY, DECEMBER 1
Symposium. Please see the separate Symposium programme for details.

WEDNESDAY, DECEMBER 2
11:30 AM - 12:00 PM discussion; lunch at 12:00 PM; excursion 2:00 PM - 6:00 PM.

GROUP PHOTOS
November 23 and 30, 10:00 AM - 10:10 AM

GROUP DINNERS
November 26 and December 3, 6:30 PM - 8:30 PM

SATURDAY, DECEMBER 5
Departure

Monday, November 23, 2026

WEEK 1 / 2026

8:50 AM - 9:00 AM	**Opening and welcome**

MORNING SESSION

Chair: Giuseppina Orlandini | University of Trento

9:00 AM - 10:00 AM	**Ab Initio No Core Shell Model - Progress and Plans** **James Vary** Iowa State University
10:00 AM - 10:10 AM	**Group photo**
10:10 AM - 10:30 AM	**Coffee break**
10:30 AM - 11:30 AM	**Ab Initio Theory of Nuclear Structure and Reactions** **Petr Navratil** TRIUMF
11:30 AM - 2:00 PM	**Break / lunch**

AFTERNOON SESSION

Chair: Andrey Shirokov | Moscow State University

2:00 PM - 3:00 PM	**Relativistic chiral nuclear forces: status and prospect** **Lisheng Geng** Beihang University
3:00 PM - 4:00 PM	**Chiral N^3LO_{Texas}: Towards more accurate nuclear interactions** **Baishan Hu** Peking University
4:00 PM - 4:30 PM	**Coffee break**
4:30 PM - 5:30 PM	**Discussion session for today's talks and open microphone for memorial contributions for Igal Talmi and Jerry Draayer.** Discussion led by: Ulf-G. Meißner | University of Bonn / Forschungszentrum Jülich

Tuesday, November 24, 2026

WEEK 1 / 2026

MORNING SESSION

Chair: Roman Skibiński | Jagiellonian University

9:00 AM - 10:00 AM

Recent progress in NLEFT

Ulf-G. Meißner

University of Bonn / Forschungszentrum Jülich

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

Chiral EFT for nuclear interactions: Recent developments

Evgeny Epelbaum

Ruhr-Universität Bochum

3:00 PM - 4:00 PM

Understanding Tensor-Force Effect in Nuclear Structure

Hooi Jin Ong

Institute of Modern Physics, Chinese Academy of Sciences

4:00 PM - 4:30 PM

Coffee break

4:30 PM - 5:30 PM

Discussion session

Discussion led by: Petr Navratil | TRIUMF

Wednesday, November 25, 2026

WEEK 1 / 2026

MORNING SESSION

Chair: Winfried Leidemann | University of Trento

8:30 AM - 9:30 AM

Ab initio calculations for nuclei as open quantum systems

Furong Xu

Peking University

9:30 AM - 10:30 AM

Ab-initio shell model for the sd shell

Nadezda Smirnova

LP2IB - University of Bordeaux

10:30 AM - 11:00 AM — **Coffee break**

11:00 AM - 12:00 PM

Nuclear shell model for BSM physics

Luigi Coraggio

Università degli studi della Campania "Luigi Vanvitelli" - Sezione INFN di Napoli

12:00 PM - 2:00 PM — **Lunch**

AFTERNOON SESSION

Chair: Pengwei Zhao | Peking University

2:00 PM - 3:00 PM

Nuclear ab initio calculations for astrophysical applications

Takayuki Miyagi

University of Tsukuba

3:00 PM - 4:00 PM

Mass measurements of short-lived nuclides at storage ring and the ab-initio calculations

Yuan-ming Xing

Institute of Modern Physics, Chinese Academy of Sciences

4:00 PM - 4:30 PM — **Coffee break**

4:30 PM - 5:30 PM — **Discussion session**

Discussion led by: James Vary | Iowa State University

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

Nuclear forces and nuclear collectivities

Takaharu Otsuka

University of Tokyo / RIKEN Nishina Center

10:00 AM - 10:30 AM

Coffee break

10:30 AM - 11:30 AM

Semistochastic heat-bath configuration interaction with ab initio valence-space Hamiltonians

Jianguo Li

Institute of Modern Physics, Chinese Academy of Sciences

11:30 AM - 2:00 PM

Break / lunch

AFTERNOON SESSION

Chair: Peter Love | University of Toronto

2:00 PM - 3:00 PM

NN interaction from covariant chiral effective field theory

Xiulei Ren

Shandong University

3:00 PM - 4:00 PM

Nuclear Magicity and Collectivity from Ab Initio No-Core Shell Model Calculations

He Li

Institute of Modern Physics, Chinese Academy of Sciences

4:00 PM - 4:30 PM

Coffee break

4:30 PM - 5:30 PM

Discussion session

Discussion led by: Furong Xu | Peking University

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

Deep-Neural-Network Approach to Solving the Ab Initio Nuclear Structure Problem

Pengwei Zhao

Peking University

10:00 AM - 10:30 AM

Coffee break

10:30 AM - 11:30 AM

Restoration of rotational symmetry in light-front dynamics

Vladimir Karmanov

Lebedev Physical Institute, Russian Academy of Sciences

11:30 AM - 2:00 PM

Lunch

AFTERNOON SESSION

Chair: Dong Bai | Hohai University

2:00 PM - 3:00 PM

Renormalized light front Hamiltonians and Quantum Simulation

Peter Love

University of Toronto

3:00 PM - 4:00 PM

Nucleon structure from light-front Hamiltonian approach

Xingbo Zhao

Institute of Modern Physics, Chinese Academy of Sciences

4:00 PM - 4:30 PM

Coffee break

4:30 PM - 5:30 PM

Discussion session

Discussion led by: Takaharu Otsuka | University of Tokyo / RIKEN Nishina Center

Saturday, November 28, 2026

WEEK 1 / 2026

2:00 PM - 6:00 PM	**Excursion**

Monday, November 30, 2026

WEEK 2 / 2026

MORNING SESSION

Chair: Jason Holt | TRIUMF

9:00 AM - 10:00 AM

A New Investigation of the ^{4}He Isoscalar Monopole Resonance

Giuseppina Orlandini

University of Trento

10:00 AM - 10:10 AM

Group photo

10:10 AM - 10:30 AM

Coffee break

10:30 AM - 11:30 AM

Nonrelativistic ab initio calculation of inelastic electron scattering and importance of relativistic effects

Winfried Leidemann

University of Trento

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

Advances in ab initio nuclear many-body calculations via quantum computing

Weijie Du

Institute of Modern Physics, Chinese Academy of Sciences

3:00 PM - 4:00 PM

Nuclear structure effects to spectroscopy in hydrogen-like atoms

Chen Ji

Central China Normal University

4:00 PM - 4:30 PM

Coffee break

4:30 PM - 5:30 PM

Discussion session

Discussion led by: Pengwei Zhao | Peking University

Tuesday, December 1, 2026

WEEK 2 / 2026

Symposium

Please see the separate Symposium programme for the detailed schedule.

Wednesday, December 2, 2026

WEEK 2 / 2026

MORNING SESSION

Chair: Chen Ji | Central China Normal University

9:00 AM - 10:00 AM

Ab initio theory for beyond standard model physics searches

Jason Holt
TRIUMF

10:00 AM - 10:30 AM

Coffee break

10:30 AM - 11:30 AM

Discretization of Continuum for Few-Body Problems

Olga Rubtsova
Lomonosov Moscow State University

11:30 AM - 12:00 PM

Discussion session

Discussion led by: Francesca Sammarruca | University of Idaho

12:00 PM

Lunch

2:00 PM - 6:00 PM

Excursion / free discussions

No main-programme reports.

Thursday, December 3, 2026

WEEK 2 / 2026

MORNING SESSION

Chair: Francesca Sammarruca | University of Idaho

9:00 AM - 10:00 AM

Neural networks and ab initio calculations

Andrey Shirokov

Moscow State University

10:00 AM - 10:30 AM

Coffee break

10:30 AM - 11:30 AM

Study of resonances in the ^{6}He nucleus based on ab initio calculation

Aleksandr Mazur

Danilovskiy Pacific National University

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

Spin teleportation of protons at the MeV scale

Dong Bai

Hohai University

3:00 PM - 4:00 PM

Ab initio calculations of weak process in atomic nuclei

Zhen Li

Technical University of Darmstadt

4:00 PM - 4:30 PM

Coffee break

4:30 PM - 5:30 PM

Discussion session

Discussion led by: Giuseppina Orlandini | University of Trento

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

Towards description of electron-deuteron scattering with consistent relativistic forces and currents.

Roman Skibiński

Jagiellonian University

10:00 AM - 10:30 AM — **Coffee break**

10:30 AM - 11:30 AM

Ab initio nuclear theory in the era of multi-physics constraints

Francesca Sammarruca

University of Idaho

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

Nuclear electromagnetic properties with the ab initio no-core shell model

Peng Yin

Henan University of Science and Technology

3:00 PM - 4:00 PM

Ab initio neutron-alpha scattering using the Efros method

Mamoon Sharaf

Institute of Modern Physics, Chinese Academy of Sciences

4:00 PM - 4:30 PM — **Coffee break**

4:30 PM - 5:20 PM — **Discussion session**

Discussion led by: Winfried Leidemann | University of Trento

5:20 PM - 5:30 PM — **Closing remarks**