

INTERNATIONAL SYMPOSIUM COMMEMORATING THE 40TH ANNIVERSARY OF THE HALO NUCLEI

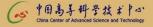
OCT.12-18, 2025 CAPITAL HOTEL, BEIJING

PROGRAM

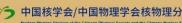




















International Symposium

Commemorating the 40th Anniversary of the Halo Nuclei

After an experimental discovery of anomalously large interaction cross sections of ¹¹Li

in 1985, the concept of the neutron halo was originated in 1987. Following the

successful 30th anniversary event in 2015 (https://agenda.infn.it/event/8712/), the

International Symposium Commemorating the 40th Anniversary of the Halo

Nuclei (HALO-40) is held at the Capital Hotel in Beijing on October 12 – 18, 2025.

The symposium is hosted by the National Natural Science Foundation of China, Asian

Nuclear Physics Association, China Center of Advanced Science and Technology,

Nuclear Physics Division of the Chinese Nuclear Society and the Chinese Physical

Society, Peking University, Beihang University, Institute of Theoretical Physics

(Chinese Academy of Sciences), and China Institute of Atomic Energy. It is organized

by the China Institute of Atomic Energy, Beihang University, and Peking University.

Main topics

Halo nuclei

Nuclear structures approaching the dripline

Reaction dynamics for exotic nuclei

Advanced nuclear models for exotic nuclei

Interdisciplinary frontiers related to exotic nuclei

Facility and instruments for exotic nuclei

Website: https://indico.pku.edu.cn/event/42/

Contact: halo40@pku.edu.cn

International Advisory Committee

Members			
Nori Aoi	University of Tokyo		
Carlos Bertulani	East Texas A&M University		
Angela Bonaccorso	INFN		
Kouichi Hagino	Kyoto University		
Emiko Hiyama	Tohoku University		
Kevin Insik Hahn	Institute for Basic Science		
Robert Janssens	University of North Carolina at Chapel Hill		
Rituparna Kanungo	TRIUMF		
Yu-Gang Ma	Fudan University		
Augusto Macchiavelli	Oak Ridge National Laboratory		
Ulf-G. Meißner	Bonn University / FZ Jülich		
Zsolt Podolyak	University of Surrey		
Jacek Dobaczewski	University of York		
Christoph Scheidenberger	GSI		
Olivier Sorlin	GANIL		
Michael Thoennessen	Michigan State University		
Dario Vretenar	University of Zagreb		
Huan-Qiao Zhang	China Institute of Atomic Energy		
Xiao-Hong Zhou	Institute of Modern Physics, CAS		

Local Organizing Committee

Chairs			
Bing Guo	China Institute of Atomic Energy		
Bao-Hua Sun	Beihang University		
	Secretary		
Ying-Xun Zhang	China Institute of Atomic Energy		
	Members		
Ying Li	China Institute of Atomic Energy		
Yang-Ping Shen	China Institute of Atomic Energy		
Lei Yang	China Institute of Atomic Energy		
Jian-Wei Zhao	Beihang University		
Peng-Wei Zhao	Peking University		
Yun Zheng	China Institute of Atomic Energy		

Hosted by

















Organized by







Workshop Guidelines

1. On-site Registration

- → Place: Lobby, 1st floor, the Capital Hotel (October 12);
 Ziyun Grand Ballroom, 2nd floor, the Capital Hotel (October 13-17)
- ♦ Registration desk:
 - a) Sign on the registration form and take the name tag
 - b) Pay the registration fee (Credit card, Alipay, and WeChat Pay)
 - c) Collect the document bag

Registration Type	Registration Fee
Regular	3960 CNY / 550 USD
Student	2160 CNY/ 300 USD
Accompanying Person	1440 CNY / 200 USD

♦ Hotel front desk: Check in and receive your room card

2. Conference room

◆ Ziyun Grand Ballroom (紫云厅), 2nd floor, the Capital Hotel

3. Meals

- ◆ Breakfast: Four Seasons (四季厅), 1st floor, the Capital Hotel
- ◆ Lunch: Four Seasons (四季厅), 1st floor, the Capital Hotel
- ◆ Reception: Der Landgraf Brauhaus Restaurant (兰特伯爵西餐厅), 1st floor, the Capital Hotel
- ◆ Banquet: Jinyun Ballroom (锦云厅), 2nd floor, the Capital Hotel
- ♦ Please use the meal tickets (excludes banquet)

Note: Please ensure that the meal tickets are used for yourself only. Please dispose of unused tickets or return them to the organizers. Thank you for your cooperation!

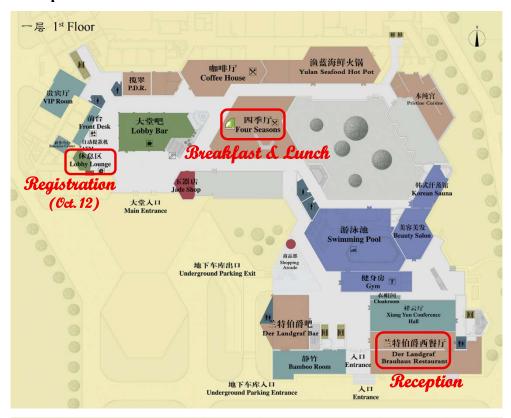
4. Parking

♦ Fee: 15 CNY per hour

5. Contact person

♦ Qiang Zhao (China Institute of Atomic Energy)
 Tel: +86 173 9310 6566; Email: qzhao.ciae@outlook.com

6. Floor plan





7. Venue:

The Capital Hotel (首都宾馆) occupies a prime location on Beijing's central axis. Steps away from Wangfujing and Qianmen commercial districts, it is surrounded by iconic landmarks including Tiananmen Square, the Forbidden City, and the National Museum of China-offering a unique blend of historical heritage and modern vitality. With subways and bus stops nearby, the hotel is easily accessible.





8. Transportation:

- ♦ Beijing Capital International Airport
 - a) Taxi: taking about 1 hour and costing around 100 CNY
 - b) Subway (about 50 minutes)



- ♦ Beijing Daxing International Airport
 - a) Taxi: taking about 1 hour and costing around 160 CNY
 - b) Subway (about 1 hour):



- ♦ Beijing South Railway Station
 - a) Taxi: taking about 30 minutes and costing around 40 CNY
 - b) Subway (about 20 minutes):



- ♦ Beijing West Railway Station
 - a) Taxi: taking about 30 minutes and costing around 40 CNY
 - b) Subway (about 30 minutes):



- ♦ Beijing Railway Station
 - a) Taxi: taking about 15 minutes and costing around 25 CNY
 - b) Subway (about 20 minutes):



- ♦ Chongwen Men Subway Station
 - a) Walk: taking about 10 minutes



9. Nearby:



The Forbidden City

Tian'anmen

Qianmen Street



National Theatre

The Temple of Heaven National Museum of China

Reminder: Visiting Tiananmen Square and the Forbidden City requires advance reservations through the official website; otherwise, entry will not be allowed.

10. Awards:

With the support of Particles, the symposium will present awards for the best oral presentation to young scholars (PhD students and those within five years of PhD graduation). To apply for the awards, please indicate your intention when submitting the abstract or send us an email.

11. Tips:

For a smoother experience during your time in China, we recommend setting up WeChat Pay or Alipay. These mobile payment platforms are widely accepted and incredibly easy to use — just scan a QR code to pay, no need to carry large amounts of cash or fumble with cards. Simply download the relevant app to your phone, register an account, verify your identity with your passport, and add a credit card — and you'll be ready to go. You can use them at hotels, restaurants, shops, tourist attractions, and even on public transportation, saving you time and hassle so you can focus on enjoying the Symposium.

<u>Program for International Symposium</u> Commemorating the 40th Anniversary of the Halo Nuclei

October 12 - 18, 2025 | Capital Hotel, Beijing

	October 12th, 2025 (Sunday)
14:00-20:00	Registration (1st Floor at the Capital Hotel)
18:00-20:00	Reception (Der Landgraf Brauhaus Restaurant, 1st Floor at the Capital Hotel)

Conference Room: 2F Ziyun Grand Ballroom (紫云厅)

October 13 th , 2025 (Monday)				
8:00-8:20	Registration			
Time		Opening		
8:20-8:30	Huanqiao Zhang China Institute of Atomic Energy		Bing Guo China Institute of	
8:30-8:45	Björn Jonson (Online) Chalmers University of Technology		Atomic Energy	
Time	Speaker	Title	Chair	
8:45-9:10 (20+5 min)	Isao Tanihata Beihang University / Osaka University	Neutron halo to Tensor interactions		
9:10-9:35 (20+5 min)	Meng Wang Institute of Modern Physics, CAS	Introduction on the High Intensity Heavy-ion Accelerator Facility (HIAF)	Shan-Gui Zhou Institute of Theoretical Physics, Chinese Academy of Sciences	
9:35-10:00 (20+5 min)	Peter Ring Technischen Universität München	Theoretical Methods to Describe Halo-Phenomena in Nuclei	Treadelly of Sciolices	

10:00-10:45	Photo (In front of the main lobby entrance) & Break		
10:45-11:10 (20+5 min)	Takashi Nakamura Institute of Science Tokyo	Coulomb Breakup and soft E1 excitation of Halo Nuclei: Present and Future	
11:10-11:35 (20+5 min)	Byungsik Hong Korea University	Status of LAMPS at RAON	Dario Vretenar University of Zagreb
11:35-12:00 (20+5 min)	Youbao Wang China Institute of Atomic Energy	Nuclear Physics at Beijing Rare Isotope Facility (BRIF)	
12:00-14:00	Lu	nch (Four Seasons 四季厅, 1 st floor at the Capital Hot	rel)
Time	Speaker	Title	Chair
14:00-14:25 (20+5 min)	Pierre Descouvemont Université Libre de Bruxelles	Microscopic study of halo nuclei through (p, t) reactions	
14:25-14:50 (20+5 min)	Baohua Sun Beihang University	Deducing charge radii from charge-changing reactions of rare isotopes	Taka Kajino Beihang University /
14:50-15:15 (20+5 min)	Masaomi Tanaka Kyushu University	Recent results of interaction cross section measurements in Japan	University of Tokyo / NAOJ
15:15-15:40 (20+5 min)	Enrico Vigezzi INFN Milano	A dynamical model of light neutron halos	
15:40-16:00		Break	
16:00-16:25 (20+5 min)	Hui Hua Peking University	Decay and Structure of Nuclei around the Light Proton Drip Line	
16:25-16:50 (20+5 min)	Elias Khan IJCLab	Exotic nuclear phases, structure, and decay	
16:50-17:15 (20+5 min)	Lu Guo University of Chinese Academy of Sciences	Microscopic dynamics: from fusion and quasifission to fission	Shuangquan Zhang Peking University
17:15-17:40 (20+5 min)	Wen Hui Long Lanzhou University	Exchange correlation effects in nuclear novel phenomena	
17:40-18:05 (20+5 min)	Ivan Muhka GSI	Two-proton emitters "reflecting" the halo structure of their mirror neutron-rich nuclei	

October 14 th , 2025 (Tuesday)			
Time	Speaker	Title	Chair
8:30-8:55 (20+5 min)	Lisheng Geng Beihang University	Relativistic chiral nuclear forces: recent developments and applications	
8:55-9:20 (20+5 min)	Petr Navratil TRIUMF	Halo nuclei from ab initio nuclear theory	
9:20-9:45 (20+5 min)	Takaharu Otsuka The University of Tokyo	Shape deformation and halo formation	Lie-Wen Chen Shanghai Jiao Tong University
9:45-10:00 (12+3 min)	Xiu-Lei Ren Shandong University	A subtractive renormalization scheme on Chiral EFT and Halo EFT	
10:00-10:15 (12+3 min)	Xiao-Dong Xu Institute of Modern Physics, CAS	Observation and spectroscopy of new proton- unbound nuclei ²¹ Al and ²⁰ Al	
10:15-10:35		Break	
10:35-11:00 (20+5 min)	Grzegorz Kaminski FLNR, JINR	Research with light exotic nuclei at the FLNR, JINR	
11:00-11:25 (20+5 min)	Chengjian Lin China Institute of Atomic Energy	Nuclear halos and related studies at the China Institute of Atomic Energy	
11:25-11:40 (12+3 min)	Kaijia Sun Fudan University	Production of strange halo nuclei in heavy-ion collisions	Zhipan Li Southwest University
11:40-11:55 (12+3 min)	Xiaodong Tang Institute of Modern Physics, CAS	Fusion reaction studies with neutron-rich beams	Southwest Oniversity
11:55-12:10 (12+3 min)	Nan Wang Shenzhen University	The impact of nucleon-nucleon collisions on heavy- ion fusion reactions: An investigation utilizing time- dependent Hartree-Fock theory with the relaxation- time approximation	
12:10-14:00	Lunch (Four Seasons 四季厅, 1st floor at the Capital Hotel)		
Time	Speaker	Title	Chair

14:00-14:25 (20+5 min)	Kouichi Hagino Kyoto University	Deformation and pairing in neutron-rich halo nuclei	
14:25-14:50 (20+5 min)	Wataru Horiuchi Osaka Metropolitan University	Nuclear halo: size, excitations, and related phenomena	
14:50-15:05 (12+3 min)	Lang Liu Jiangnan University	Pairing Phase Transition in Hot Nuclei	Xiaotao He
15:05-15:20 (12+3 min)	Bo Li* Peking University	Relativistic continuum Hartree-Bogoliubov theory in three-dimensional lattice space	Nanjing University of Aeronautics and Astronautics
15:20-15:35 (12+3 min)	Xue Liu Beijing Normal University	Determination of the rms radius of the neutron single-particle orbital in ¹⁷ B	
15:35-15:50 (12+3 min)	Kaiyuan Zhang Institute of Nuclear Physics and Chemistry, CAEP	Triaxially deformed halo nuclei	
15:50-16:10		Break	
16:10-16:35 (20+5 min)	Lie-Wen Chen Shanghai Jiao Tong University	PREX and CREX: Evidence of Strong Isovector Spin-Orbit Interaction	
16:35-17:00 (20+5 min)	Jianjun He Fudan University	Mystery of Calcium production in the first generation stars	
17:00-17:25 (20+5 min)	Aurora Tumino Laboratori Nazionali del Sud, Catania	Indirect Probes of Nuclear Astrophysics and Fundamental Symmetries	Takeshi Suzuki
17:25-17:40 (12+3 min)	Fei Lu Shanghai Advanced Research Institute, CAS	Probing Highly Excited States in the Exotic Nucleus ⁶¹ Fe via the Beta-Oslo Method	Saitama University / RIKEN
17:40-17:55 (12+3 min)	Junping Yang* Shenzhen University	Revisiting the neutron-proton effective mass splitting in heavy-ion collisions: Is the momentum dependence of the symmetry potential monotonic?	
17:55-18:10 (12+3 min)	Zhonghao Tu* Xiamen University	Unified quark mean field equation of state for neutron star matter: Static and dynamic properties	

October 15 th , 2025 (Wednesday)			
Time	Speaker	Title	Chair
8:30-8:55 (20+5 min)	Yury Litvinov GSI	Nuclear Astrophysics at Low-Energy Storage Rings	
8:55-9:20 (20+5 min)	Dimitar Tonev Institute of Nuclear Research and Nuclear Energy, BAS	Lifetime measurements – a powerful tool to study nuclear structure	
9:20-9:45 (20+5 min)	Takayuki Yamaguchi Saitama University	The Rare-RI Ring facility	Byungsik Hong Korea University
9:45-10:00 (12+3 min)	Wei Nan* China Institute of Atomic Energy	First experiment using post-accelerated unstable ion beams at BRIF: angular distribution of the ^{21,22} Na elastic scattering from doubly magic ⁴⁰ Ca	
10:00-10:15 (12+3 min)	Yazhou Sun Institute of Modern Physics, CAS	Reactions with RIBs at RIBLL2-ETF	
10:15-10:35		Break	
10:35-11:00 (20+5 min)	Nikolai Antonenko BLTP, JINR	Perspectives for cold and hot fusion reactions	
11:00-11:25 (20+5 min)	Jenny Lee The University of Hong Kong	Structural evolution of neutron-rich Calcium isotopes	
11:25-11:40 (12+3 min)	Fulong Liu* University of Tokyo	Experimental investigation of the ⁶ He + p reaction: Elastic scattering and two-neutron transfer	Pierre Descouvemont Université Libre de Bruxelles
11:40-11:55 (12+3 min)	Yiping Wang* Peking University	Configuration-interaction time-dependent density functional theory and its first application	
11:55-12:10 (12+3 min)	Dan Dan Zhang* Institute of Theoretical Physics, CAS	Mass and Spin Distributions of Fragments in Multinucleon Transfer Reactions with Time- Dependent Covariant Density Functional Theory	
12:10-14:00	Lui	nch (Four Seasons 四季厅, 1 st floor at the Capital Ho	tel)

Time	Speaker	Title	Chair
14:00-14:25 (20+5 min)	Emiko Hiyama Tohoku University / RIKEN	Structure of neutron-rich nucleus, ⁷ H	
14:25-14:50 (20+5 min)	Zaihong Yang Peking University	Halos and multi-neutron correlations in light neutron-rich nuclei	
14:50-15:05 (12+3 min)	Jing Geng* Lanzhou University	A coherent microscopic picture for the exotic structure of ¹¹ Be	Elias Khan
15:05-15:20 (12+3 min)	Qi Lu* Beihang University	Progress on the description of 1n halo nuclei from microscopic structures to reaction observables	IJCLab
15:20-15:35 (12+3 min)	Kosei Nakagawa* Kyoto University	α^{+2} n+2n cluster structure and 2n breaking in 8He (0_2^+)	
15:35-15:50 (12+3 min)	De-Ye Tao* Fudan University	Dineutron and diproton halo structures in light nuclei	
15:50-16:10		Break	
16:10-16:35 (20+5 min)	Lorenzo Fortunato University of Padua	Halo phenomena in light to medium mass nuclei with three-body models	
16:35-17:00 (20+5 min)	Simin Wang Fudan University	Exotic Three-Body Decay in Open Quantum Systems	
17:00-17:15 (12+3 min)	Yongbeom Choi* Beihang University	Proton Emission and Shape Coexistence in Odd-Z Nuclei $(71 \le Z \le 83)$	Chengjian Lin
17:15-17:30 (12+3 min)	Shihang Shen Beihang University	Ab initio study of Beryllium isotopes: clustering, molecular orbital, and halo	China Institute of Atomic Energy
17:30-17:45 (12+3 min)	Hankui Wang Zhejiang Sci-Tech University	Monopole effects: the key role to explain neutron- rich nuclear structure	
17:45-18:00 (12+3 min)	Chang Zhou* Peking University	Deformed halo nucleus ⁴² Mg in deformed relativistic Hartree-Bogoliubov theory in continuum with Lipkin-Nogami correction	
18:30-21:00	Banqı	uet (Jinyun Ballroom 锦云厅, 2 nd floor at the Capital I	Hotel)

October 16th, 2025 (Thursday)			
Time	Speaker	Title	Chair
8:30-8:55 (20+5 min)	Gongtao Fan SARI, CAS	Status of Shanghai Laser Electron Gamma Source	
8:55-9:20 (20+5 min)	Hiroyuki Sagawa RIKEN / University of Aizu	A Halo: the trigger to new era of nuclear correlations	
9:20-9:45 (20+5 min)	Yuanming Xing Institute of Modern Physics, CAS	Nuclear mass measurements reveal exotic structures in proton-rich sd-shell nuclei	Aurora Tumino Laboratori Nazionali del Sud, Catania
9:45-10:00 (12+3 min)	Xiaofei Jiang* Peking University	Dipole response in deformed halo nuclei ^{42,44} Mg	
10:00-10:15 (12+3 min)	Cong Pan* Anhui Normal University	Prediction of deformed and spherical halo nuclei in neutron-rich silicon isotopes	
10:15-10:35		Break	
10:35-11:00 (20+5 min)	Lei Jin Tongji University	SMOOTHIE: A Computational Tool for Nonelastic Breakup Calculations using the Ichimura-Austern- Vincent Formalism	
11:00-11:25 (20+5 min)	Tetsuaki Moriguchi University of Tsukuba	Measurements of Reaction Cross Sections with a Solid Hydrogen Target and Development of the Target System	
11:25-11:40 (12+3 min)	Rinku Kumar Prajapat* GSI	Measurement of interaction and charge-changing cross-sections of carbon isotopes	Ivan Mukha GSI
11:40-11:55 (12+3 min)	Jian Li Jilin University	Microscopic study of charge properties in halo nuclei	USI
11:55-12:10 (12+3 min)	Jun-Yao Xu* Beihang University	Exponential pattern of Charge-changing cross sections of relativistic nuclei on various reaction targets	
12:10-12:25 (12+3 min)	Jichao Zhang* RCNP, University of Osaka	Charge pickup reaction cross section for neutron-rich p-shell isotopes at 900A MeV	
12:25-14:00	Lu	nnch (Four Seasons 四季厅, 1 st floor at the Capital Hot	rel)
14:00-18:00		Free Discussions	

October 17 th , 2025 (Friday)			
Time	Speaker	Title	Chair
8:30-8:55 (20+5 min)	Faical Azaiez LNL-INFN	SPES project status and future plans	
8:55-9:20 (20+5 min)	Yumin Zhao Shanghai Jiao Tong University	Recent advance in the nucleon-pair approximation to the shell model	
9:20-9:35 (12+3 min)	Boshuai Cai* Sun Yat-sen University	Microscopic Description of α Formation Based on Configuration Interaction Shell Model	Nikolai Antonenko BLTP, JINR
9:35-9:50 (12+3 min)	Hadi Sobhani Nankai University	New studies in the shell and collective models	
9:50-10:05 (12+3 min)	Tianyu Wu* Beihang University	Monte Carlo Glauber Calculation of Interaction Cross Sections with Ab Initio Configurations	
10:05-10:25		Break	
10:25-10:50 (20+5 min)	Jie Chen Southern University of Science and Technology	Unraveling the Structure of Be isotopes and the Disappearance of the N=8 Magic Number	
10:50-11:15 (20+5 min)	Nobu Kobayashi RCNP	Deformation-driven halo formation in neutron rich nuclei ³⁷ Mg and ³¹ Ne	
11:15-11:30 (12+3 min)	Weijie Du Institute of Modern Physics, CAS	Many-nucleon structure and dynamics via quantum computing	Emiko Hiyama Tohoku University / RIKEN
11:30-11:45 (12+3 min)	Xiao Lu* Institute of Theoretical Physics, CAS	Dipole response of deformed halo nuclei ³¹ Ne and ³⁷ Mg	
11:45-12:00 (12+3 min)	Xuan Wang* Beihang University	Study of (p,t) reaction on ¹¹ Li at 6 MeV/nucleon	
12:00-14:00	12:00-14:00 Lunch (Four Seasons 四季厅, 1st floor at the Capital Hotel)		

Time	Speaker	Title	Chair
14:00-14:25 (20+5 min)	Alisher Sanetullaev New Uzbekistan University	Probing Cluster Correlations in Neutron-Rich Ca Isotopes with Quasi-Free Scattering	Petr Navratil TRIUMF
14:25-14:50 (20+5 min)	Bo Zhou Fudan University	Gas-like Cluster States in Light Nuclei	
14:50-15:05 (12+3 min)	Mingyan Li Hunan University	The electromagnetic form factors of the hyperon Σ in the time like region	
15:05-15:20 (12+3 min)	Weifeng Li Anhui University	Predictions for the (n, 2n) reaction cross section based on a Bayesian neural network approach	
15:20-15:35 (12+3 min)	Zhixuan Wang Sun Yat-sen University	Study on the Excited State Lifetimes of Neutron- Rich Isotopes - Based on ²⁵² Cf Fission Experiments	
15:35-15:50 (12+3 min)	Jianwei Zhao Beihang University	Fission isomer studies with advanced experimental facilities and detection systems	
15:50-16:10		Break	
16:10-16:35 (20+5 min)	Nobuo Hinohara University of Tsukuba	Recent developments and applications of the finite- amplitude method for nuclear collective excitations	Dimitar Tonev Institute of Nuclear Research and Nuclear Energy, Bulgarian Academy of Sciences
16:35-17:00 (20+5 min)	Giuseppe Verde INFN	TBD	
17:00-17:15 (12+3 min)	Fengcheng Liu Beijing Normal University	Decay measurement of ²³⁵ U fission products based on LAMBDA-II and its application in the study of reactor neutrino anomalies	
17:15-17:30 (12+3 min)	Ying Zhang Tianjin University	Probing the Λ Hyperon Drip Line in Multi-Λ Oxygen and Calcium Hypernuclei	
17:30-18:00		Closing	

Note: An asterisk (*) indicates a candidate for the Best Talk Award for Young Scholars.



HALO-

