

The Seventh International Symposium on Chiral Symmetry in Hadrons and Nuclei

Conference Guide

Sponsored & Organized by:

Beihang University

China Center of Advanced Science and Technology World Lab

Hunan Normal University

Institute of Modern Physics, CAS

Institute of Theoretical Physics, CAS

National Natural Science Foundation of China

Osaka University (Japan)

Peking University

Theoretical Physics Center for Science Facilities, CAS

Tsinghua University

Hosted by

Beihang University

27 – 30 October, 2013

Beijing, China

General Description

Chiral13 is the seventh of a series of workshops on chiral dynamics in hadron and nuclear physics:

- Chiral00: Possible Existence of the Sigma Meson and its Implications to Hadron Physics, YITP (Kyoto University), Japan
- Chiral01: Chiral Fluctuations on Hadronic Matter, Orsay, France
- Chiral02: Chiral Restoration in Nuclear Medium, YITP (Kyoto University), Japan
- Chiral05: Chiral Restoration in Nuclear Medium, RIKEN, Japan
- Chiral07: Chiral Symmetry in Hadron and Nuclear Physics, Osaka, Japan
- Chiral10: International Workshop on Chiral Symmetry in Hadrons and Nuclei, Valencia, Spain

The last years have seen remarkable progresses in hadron and nuclear physics towards a unified framework based on the fundamental theory of the strong interaction, quantum chromodynamics and effective field theories based upon QCD symmetries. The workshop will address some of these recent developments. The topics to be discussed will cover:

- Chiral and heavy-quark spin symmetry
- Chiral dynamics of few-body hadron systems
- Chiral symmetry and hadrons in a nuclear medium
- Chiral dynamics in nucleon-nucleon interaction and atomic nuclei
- Chiral symmetry in rotating nuclei
- Hadron structure and interactions
- Exotic hadrons, heavy flavor hadrons and nuclei
- Mesonic atoms and nuclei

The intention is to provide an overview of the present status in these fields as well as of new developments, and a preview of forthcoming investigations.

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Oct. 27 (Sunday) (9:00 ---- 18:20)				
Plenary I Venue: Lecture room 2				
Chair: Jie Meng				
09:00 ---- 09:10	Opening Speech		Bing-Song Zou (ITP, CAS)	
09:10 ---- 09:20	Welcome Address		Zhi-Ming Zheng (Vice President of Beihang U.)	
09:20 ---- 10:00	Photo and coffee break			
Chair: Bing-Song Zou				
10:00 ---- 10:30	2701 Effect of the tensor force in nuclei		Isao Tanihata (Beihang U./Osaka U.)	
10:30 ---- 11:00	2702 Charge symmetry violation in moments of the nucleon PDFs		Ross Young (Adelaide U.)	
11:00 ---- 11:30	Coffee break			
Chair: Qing Wang				
11:30 ---- 12:00	2703 Life on Earth - an accident?		Ulf-G. Meissner (Bonn U. & FZ Juelich)	
12:00 ---- 12:30	2704 Quantum kinetic approach to chiral magnetic effect		Qun Wang (U. of Science and Tech. of China)	
12:30 ---- 14:30	Lunch			
Parallel A1 Venue: Lecture room 2			Parallel B1 Venue: Lecture room 8	
Chair: Alberto Martinez Torres			Chair: Shan-Gui Zhou	
14:30 ---- 14:50	27A101 A study of eta K Kbar and eta' K Kbar with the fixed center approximation to Faddeev equations	Wei-Hong Liang (Guangxi Normal U.)	27B101 Strongly tensor correlated Hartree-Fock theory on finite nuclei and nuclear matter	Hiroshi Toki (Osaka U.)
14:50 ---- 15:10	27A102 Rho K Kbar system within the Framework of the Fixed Center Approximation to Faddeev equations	Melahat Bayar (Kocaeli U.)	27B102 Search for deeply bound Kbar-nuclear states via the ³ He (3nflight -K',N) reaction at J-PARC	Yue Ma (RIKEN)

15:10 ---- 15:30	27A103 Decays of doubly charmed meson molecules	Raquel Molina (Osaka U.)	27B103 Double Lambda hypernuclei at J-PARC	Kazuma Nakazawa (Gifu U.)
15:30 ---- 15:50	27A104 The predictions of $\Psi(nS)$ and $Upsilon(nS)$ decays based on the molecular structure	Lian-Rong. Dai (Liaoning Normal U.)	27B104 Shape-phase transitions in very neutron-rich nuclei from Zr to Pd	Hiroshi Watanabe (Beihang U.)
15:50 ---- 16:10	27A105 The high order chiral Lagrangian	Shao-Zhou Jiang (Guangxi U.)	27B105 ^{16}O in relativistic Brueckner-Hartree-Fock theory	Jin-Niu Hu (Peking U.)
16:10 ---- 16:40		Coffee break		
Chair: Shi-Lin Zhu			Chair: Manuel Pavon Valderrama	
16:40 ---- 17:00	27A106 Hyperfine Structure of Ground-State Nucleon in Chiral Quark Model	Duo-Jie Jia (Northwest Normal U.)	27B106 Recent progress towards a chiral effective field theory for the NN system	Chiehjen Yang (Trento U.)
17:00 ---- 17:20	27A107 Dynamically generated resonances from the vector octet baryon octet interaction in the strangeness zero sector	Bao-Xi Sun (Beijing U. of Technology)	27B107 Thermodynamics of hadrons using the Gaussian functional method in the linear sigma model	Shotaro Imai (Kyoto U.)
17:20 ---- 17:40	27A108 Reanalysis of the $e^+ e^- \rightarrow (D^* \bar{D}^*) \bar{p} i$ reaction and the claim for the $Z_c(4025)$ resonance	Alberto Martinez Torres (Sao Paulo U.)	27B108 Massive Hybrid Stars with Strangeness	Tatsuyuki Takatsuka (RIKEN)
17:40 ---- 18:00	27A109 Octet baryon masses in covariant baryon chiral perturbation theory	Xiu-Lei Ren (Beihang U.)	27B109 Hyperon-nucleon interaction and baryonic contact terms in $SU(3)$ chiral effective field theory	Stefan Petschauer (TU München)
18:00 ---- 18:20	27A110 Light quark mass dependence of the $X(3872)$ in XEFT	Maximilian Jansen (Bonn U.)	27B110 Renormalization and power counting of chiral nuclear forces	Bing-Wei Long (Sichuan U.)
19:00 ---- 21:00		Dinner		

The Seventh International Symposium on Chiral Symmetry in Hadrons and Nuclei

Oct. 28 (Monday) (9:00 ---- 18:40)				
Plenary II Venue: Lecture room 2				
Chair: Julian Srebrny				
09:00 ---- 09:30	2801 Rotation induced Chirality in Triaxial Nuclei		Stefan Frauendorf (Notre Dame U.)	
09:30 ---- 10:00	2802 Phase transition into spontaneous chiral symmetry breaking		Ernest Groner (Warsaw U.)	
10:00 ---- 10:30	2803 Recent theoretical developments in chirality in atomic nuclei		Shuang-Quan Zhang (Peking U.)	
10:30 ---- 11:00	Coffee break			
Chair: Emiko Hiyama				
11:00 ---- 11:30	2804 Studies of Chirality in the mass 80, 100 and 190 regions		Robert Bark (iThemba LABS)	
11:30 ---- 12:00	2805 Ab initio no core shell model for light nuclei		Youngman Kim (RISP/IBS)	
12:00 ---- 12:30	2806 Recent developments on LQCD studies of nuclear force		Hidekatsu Nemura (Tsukuba U.)	
12:30 ---- 14:30	Lunch			
Parallel A2 Venue: Lecture room 2			Parallel B2 Venue: Lecture room 8	
Chair: Peng-Nian Shen			Chair: Li-Hua Zhu	
14:30 ---- 14:50	28A201 Regge trajectory of the $f_0(500)$ resonance from a dispersive connection to its pole	Jenifer Nebreda (Yukawa Institute for Theoretical Physics)	28B201 Nuclear shpae phase transition and effective interactional strength in S D-pair shell model	Yan-An Luo (Nankai U.)
14:50 ---- 15:10	28A202 The $f_0(1790)$ and $f_0(1800)$ puzzle	Kanchan Khemchandani (Sao Paulo U.)	28B202 Study of three body force by 100MeV/u $^{12}\text{C} + ^{12}\text{C}$ elastic scattering	Gaolong Zhang (Beihang U.)
15:10 ---- 15:30	28A203 Low energy reaction $K^-p \rightarrow \Lambda \eta$ and the negative parity Λ resonances	Li-Ye Xiao (Hunan Normal U.)	28B203 Studies of hyper-nuclei with the AMD method	Masahiro Isaka (RIKEN)

15:30 ---- 15:50	28A204 Updated study of meson-baryon dynamics with strange quark in a chiral framework	Zhi-Hui Guo (Hebei Normal U.)	28B204 Parity violation in proton-proton scattering in chiral effective field theory	Jordy De Vries (FZ Juelich)
15:50 ---- 16:10	28A205 Exotic dibaryons with a heavy anti quark	Yasuhiro Yamaguchi (Osaka U.)	28B205 Two-nucleon scattering in effective field theory: searching for the power counting	Manuel Pavon Valderrama (IPN Orsay)
16:10 ---- 16:40		Coffee break		
Chair: Qun Wang			Chair: Robert Bark	
16:40 ---- 17:00	28A206 Chiral symmetry breaking and restoration with mixing between quarkonium and tetraquark	Tamal Kumar Mukherjee (IHEP)	28B206 Search for the chiral doublet bands in odd-odd nucleus ⁷⁸ Br	Chen Liu (Shangdong U.)
17:00 ---- 17:20	28A207 Symmetry breaking and determination of parton distributions of the nucleon	Fu-Guang Cao (Massey U.)	28B207 Antimagnetic rotation in nuclei: a microscopic description	Peng-Wei Zhao (Peking U.)
17:20 ---- 17:40	28A208 Dynamical holographic QCD model for chiral symmetry breaking and confinement	Dan-Ning Li (IHEP)	28B208 Collective Hamiltonian for chiral modes	Qi-Bo Chen (Peking U)
17:40 ---- 18:00	28A209 Scattering lengths of Nambu -Goldstone bosons off D mesons and dynamically generated heavy-light mesons	Michael Altenbuchinger (TU München)	28B209 Theoretical description of candidate chiral doublet bands in Ag isotopes	Bin Qi (Shandong U.)
18:00 ---- 18:20	28A210 Hadronic Form Factors From Schwinger -Dyson Equations	Adnan Bashir (Michoacán U.)	28B210 Panel Discussions —Nuclear chirality in the context of possible future scientific applications.	Julian Srebrny (Warsaw U.)
18:20 ---- 18:40				
19:00 ---- 21:00		Dinner		

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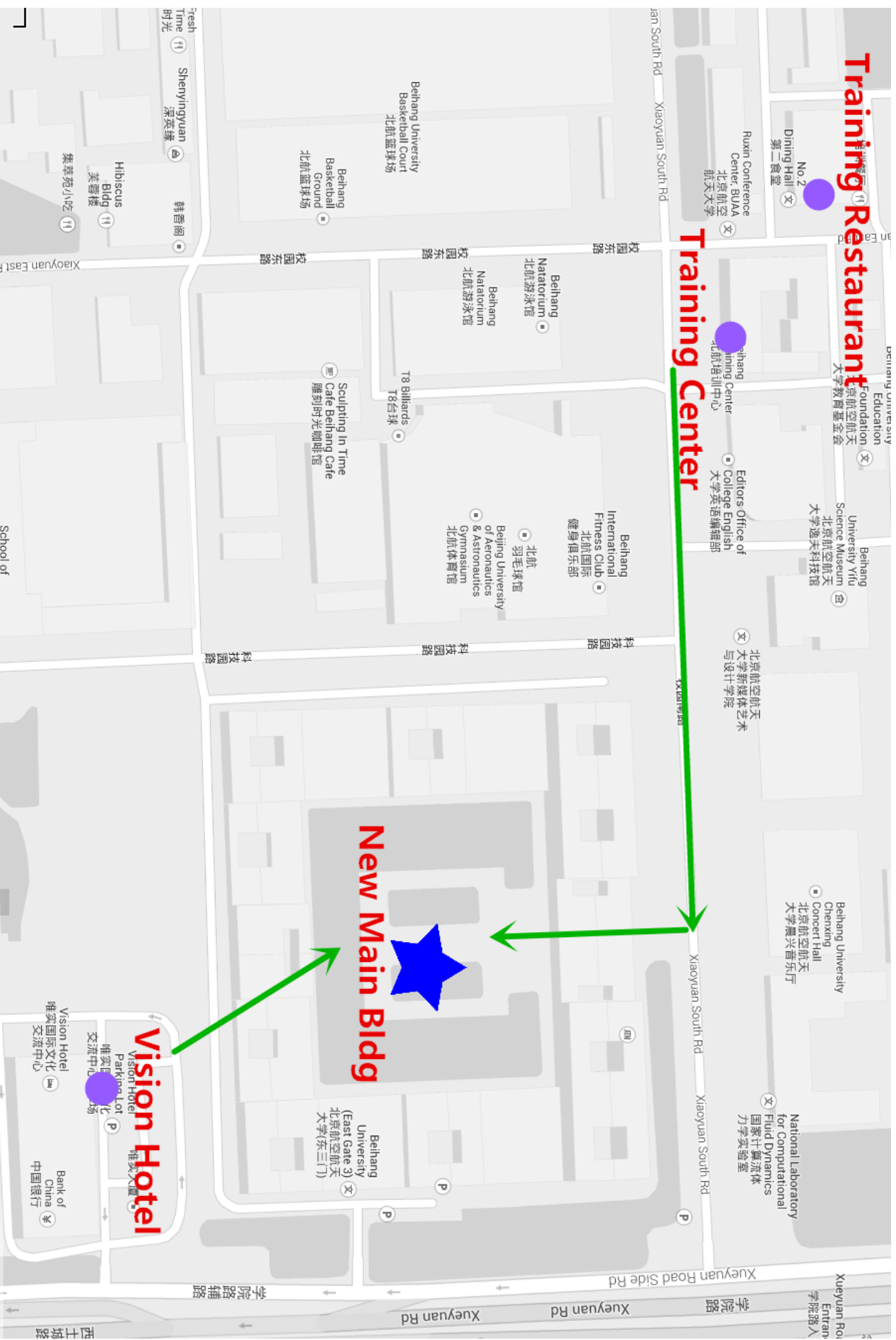
Oct. 29 (Tuesday) (9:00 ---- 18:30)				
Parallel A3 Venue: Lecture room 2			Parallel B3 Venue: Lecture room 8	
Chair: Zhi-Hui Guo			Chair: Adnan Bashir	
09:00 ---- 09:20	29A301 The new charged charmonium state $Z_c(3900)$ from BES and Belle	Cheng-Ping Shen (Beihang U.)	29B301 Roy-Steiner equations for πN scattering	Jacobo Ruiz de Elvira (Bonn U.)
09:20 ---- 09:40	29A302 Heavy quark spin structure in hidden charm molecules	Yan-Rui Liu (Shandong U.)	29B302 The Proton Spin Problem; Measurements of Octet Spin Fractions from Lattice QCD	Phiala Shanahan (Adelaide U.)
09:40 ---- 10:00	29A303 New Hidden beauty molecules predicted by the local hidden gauge approach and heavy quark spin symmetry	Chu-Wen Xiao (Valencia U. and IFIC)	29B303 Recent results from QCD sum rule analyses based on the maximum entropy method	Philipp Gubler (RIKEN)
10:00 ---- 10:20	29A304 Tensor force and Deltas for the structure of light nuclei	Kaori Horii (Osaka U.)		
10:20 ---- 11:00	Coffee break			

Plenary III Venue: New main building, Lecture room 2		
Chair: Ulf-G. Meissner		
11:00 ---- 11:30	2901 Few-body structure of light hypernuclei	Emiko Hiyama (RIKEN)
11:30 ---- 12:00	2902 Present status of light scalars	Jose R. Pelaez (Universidad Complutense)
12:00 ---- 12:30	2903 Review of theoretical prescriptions for the charged heavy quarkonium states	Qiang Zhao (IHEP, CAS)
12:30----14:30	Lunch	

Plenary IV Venue: New main building, Lecture room 2		
Chair: Eulogio Oset		
14:30 ---- 15:00	2904 Future projects at J-PARC	Hiroyuki Noumi (Osaka U.)
15:00 ---- 15:30	2905 Spectroscopy of Heavy Quark Hadrons	Makoto Oka (Tokyo Institute of Technology)
15:30 ---- 16:00	2906 How to distinguish a molecular state from an "elementary particle"	Han-Qing Zheng (Peking U)
16:00 ---- 16:30	Coffee break	
Chair: Qiang Zhao		
16:30 ---- 17:00	2907 Compositeness of hadron resonances in chiral dynamics	Tetsuo Hyodo (Yukawa Institute for Theoretical Physics)
17:00 ---- 17:30	2908 Recent progress on dynamically generated meson and baryon resonances	Eulogio Oset (IFIC and Valencia U.)
17:30 ---- 18:00	2909 From QCD to Nuclear Physics	Andre Walker-Loud (The College of William and Mary)
18:00 ---- 18:30	Closing remarks	Hiroshi Toki (Osaka U.)
19:00 ---- 21:00	Banquet	

General Information

- 1、 Conference Time: **9:00-18:30**, 27th-30th October, 2013.
- 2、 Conference Venue: New Main Building, **Lecture Room 2 & 8**.
- 3、 Participants should wear their **conference badge** during both scientific sessions and social events (including lunch and dinner).
- 4、 All speakers should arrive at least **15 minutes earlier** before their session starts and copy their presentations to the conference computers (equipped with **Microsoft PowerPoint 2010 and Adobe Reader X**).
- 5、 We recommend that all **presentation** files be named in the following way: **Presentation Number**, such as **2701**, **plus the family name of the speaker**.
Speakers should make sure that their files are compatible and readable in our computers.
- 6、 If speakers wish to use their own computer, please ask our volunteers in advance.
- 7、 We provide **free WIFI access** during coffee breaks. The network name is **chiral13** and password **beihang2013**.
- 8、 In case of emergency, please contact the following persons:
Prof. Hua-Xing Chen, Tel: (+86) 13810271268
Mr. Xiu-Lei Ren, Tel: (+86)15811540920



School of Physics and Nuclear Energy Engineering



The Main Building of Beihang University.

History

The School of Physics and Nuclear Energy Engineering (SPNEE) was started in 1952 as a part of the general physics teaching program at Beihang University. In 1997, it became the Department of Physics in the School of Science and finally, due to its rapid growth, became its own school in the form of SPNEE in 2009. The first Master's students were enrolled in 1981 (in optics) and the first doctoral students in 1999 (materials physics and chemistry/condensed matter physics).

Faculty and Staff

Currently, there are over 90 faculty and staff in the school, including 27 professors, 25 associate professors, and one member of the Chinese Academy of Engineering Sciences, Professor Jun'en Yao.

Departments and Centers

The school consists of three departments and one educational center—the Department of Physics, Department of Applied Physics, Department of Nuclear Science and Technology, and the Education Center for General Physics—covering diverse fields including condensed matter physics, theoretical physics, optics, radio physics, and nuclear science and technology. In addition, the school has one Key Laboratory of the Ministry of Education—the Key Laboratory of Micro-Nano Measurement-Manipulation and Physics established in 2009—and one international research center—the Research Center for Nuclear Science and Technology established in 2011.

Education

Two undergraduate programs (applied physics and nuclear physics) and five graduate programs (condensed matter physics, theoretical physics, particle and nuclear physics, optics, and radio physics) currently support 299 undergraduate students, 111 Master's students, 78 doctoral students, and four international students studying in the school.

Scientific Research

The school maintains a high standard of work and a dynamic research team encompassing both applied and basic research activities to keep up with the rapid advancements being made in scientific knowledge and technologies. A number of faculty members participate in international collaborations across the globe. The school is responsible for a number of national research projects including the National Science and Technology Support Program, the National Magnetic Confinement Fusion

Currently, there are over 90 faculty and staff in the school, including 27 professors, 25 associate professors, and one academician of the Chinese Academy of Engineering Sciences.



Undergraduate students in a graduation photo in front of the main building (2012).

Program, the National High-Tech Projects, and the National Natural Science Foundation Projects. The school publishes over 100 scientific papers each year in international, peer-reviewed journals and files over 20 patents in the following research areas:

Condensed Matter Physics/Materials Physics: Low-dimensional nanostructure, spintronic materials and devices, semiconductor physics, thin solid films and devices, advanced energy materials, optical materials, carbon materials, and computational physics/materials science.

Theoretical Physics: Quantum transport, topological theory, soft matter physics, and complex systems.

Optics: Electron optics and ultramicroscopy, nano-optics and optical sensors, laser and information optics, silicon photonics and devices, and precise optical measurement.

Particle and Nuclear Physics: Nuclear technology and nuclear fusion materials, nuclear structure and nuclear reactions, particle physics, nuclear astrophysics, and mass measurement.

Awards

Several outstanding research awards and recognitions have been granted to our faculty, such as the Achievement in Asia Award (Robert T. Poe Prize) from the Overseas Chinese Physics Association (2009, Jie Meng), the GSI Exotic Nuclei Community (GENCO) membership award (2010, Jie Meng and Bao-Hua Sun), the 1st Prize Natural Science Award from the Ministry of Education (2010, Rong-Ming Wang), and the Humboldt Research Award (2011, Isao Tanihata).

About Beihang University

Beihang University (formerly Beijing Institute of Aeronautics) or BUAA for short, was founded on October 25, 1952 out of the merger of the aeronautical departments of Tsinghua University, Beiyang University, Amoy (Xiamen) University, Sichuan University, Yunnan University, Northwest Institute of Technology, College of Engineering, North China University, and Southwest Aeronautical Institute. Situated in the capital in the center of Zhongguancun Science Park, next to China's National Olympic Center, with an area of over 100 hectares, BUAA is China's first university of aeronautical and astronautical engineering.

Since its founding BUAA has been one of the key universities given priority for development. In the new century and millennium, BUAA was officially listed in China's Action Plan for the Revitalization of Education in the 21st Century. Over the past 50 years BUAA has provided about 80,000 professionals of high caliber in various disciplines for the country. At present, the university comprises 17 schools and 6 departments, covering such diverse fields as science, technology, liberal arts, law, economy, management, philosophy, foreign languages and education. Total faculty and staff number more than 3,300, including 10 academicians of either the Chinese Academy of Sciences or the Chinese Academy of Engineering Sciences, over 1,400 full or associate professors, and 290 supervisors of doctorate programs. BUAA has a total enrolment of over 26,000, including more than 1,300 doctorate candidates, over 5,000 master candidates, more than 14,000 in 4 or 2 year undergraduate programs, and about 300 overseas students. It has 42 research institutes or interdisciplinary research centers, 11 key disciplines of the national level, and 89 laboratories (including 4 national key laboratories, 5 national specialized laboratories, and 12 provincial or ministerial-level key laboratories.) In recent years BUAA has ranked among the foremost in China in terms of funding for scientific research. The university is equipped with all ancillary facilities. The library, with an area of over 24,000 m², has a collection of over 1.2 million books. BUAA's sports facilities include a modern gymnasium and a sports ground with sophisticated equipment. BUAA has become one of China's important bases for scientific and technological innovation and quality education of high-level personnel.

The celebration of BUAA's 50 eventful years signifies an even more promising future. BUAA has evolved into an open, multi-disciplined, research-oriented university of engineering science and technology with an emphasis on aeronautical and astronautical engineering. At present the university is being developed with the joint efforts of the Commission of Science, Technology and Industry for National Defense, the Ministry of Education, the Municipal Government of Beijing, and the Chinese Academy of Engineering Sciences. Conscious of its role in invigorating China through science and education and pursuing its traditional style of "hard work, simple living, diligent learning, all-round development and courageous innovation," BUAA is deepening the reform in education and striving to realize its goal of becoming a "top-rate university in China, well-known throughout the world."