Third Laureate
Fundamental Research

- *Name:* *Prof. Jie Meng*
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Project Title: Relativistic description for ground-state properties of exotic nuclei

Abstract:

The worldwide Radioactive Ion Beam (RIB) facilities together with developments in the detection techniques have made it possible to produce and study nuclei far away from the stability line-so-called "EXOTIC NUCLEI". New exciting discoveries have been made by exploring hitherto inaccessible regions in the nuclear chart. Meng and his collaborators have developed the Relativistic Continuum Hartree–Bogoliubov (RCHB) theory for the last decades. The RCHB theory, which properly takes into account the pairing correlation and the coupling to (discretized) continuum via Bogoliubov transformation in a microscopic and self-consistent way, has given a new interpretation for the halo phenomena observed in light nuclei as the scattering of particle pairs into the continuum, predicated the exotic phenomena—giant halos in nuclei near neutron drip line, reproduced the interaction cross sections and charge-changing cross sections in light exotic nuclei in combination with the Glauber theory, predicted a better restoration of pseudo-spin symmetry in exotic nuclei and exotic phenomena in hypernuclei as well new magic numbers in superheavy nuclei.

Biography:

Professor Jie Meng, Cheung Kong Special Professor of the Ministry of Education and Director of the Joint Center for Nuclear Physics co-supported by Peking University and HIRFL, in Lanzhou is one of the first to describe the exotic halo phenomena microscopically and predicate the new phenomena, giant halos and magnetic rotation. He is the pioneer in the study of the chiral symmetry in atomic nucleus. Professor Meng and his collaborators have done lots of excellent work on the relativistic description of exotic nuclei and nuclear matter at extreme conditions, as demonstrated in his impressive publication lists, including 3 papers in Physical Review Letters, 6 papers in Physics Letters, and more than 100 papers in refereed journals. He plays a leading role in China as the Chairperson for the nuclear structure division of the Nuclear Physics Society in China. He has built a vivid group with raising international reputation at Peking University. He has broad international links ranging from Africa, America, Asia, and Europe. He has collaboration and joint Ph.D. co-supervision programmes with colleagues at the Technical University Munich in Germany, Institute of Physical and Chemical Research (RIKEN) in Japan, Osaka University in Japan, the Royal Institute of Technology in Sweden, and the Orsay Institute for Nuclear Physics in France, etc. He is also the founder of the international summer school on subatomic physics in Beijing.