



学术报告

题目: Deuterons in Nuclei

主讲人: Tomohiro Uesaka

时间: 2025年10月27日 (周一) 下午14:00

地点: 京师科技大厦B座1319会议室



报告人介绍: Tomohiro Uesaka received his Ph.D. from the University of Tokyo in 1997 and then went to RIKEN as a Special Postdoctoral Researcher (1997-1999). He was a research associate at Saitama University (1999-2002) and, subsequently, a lecturer (2002-2005) and associate professor (2005-2011) at the University of Tokyo. Since 2011, he has been a chief scientist of RIKEN. His research focuses on the interplay of spin and isospin in exotic nuclei, understanding nucleosyntheses in the universe, new correlations and clustering. From 2024, he has been appointed as the Deputy Director of RIKEN Nishina Center. He has also served as a member of the Program Advisory Committee of GSI/FAIR, GANIL, RCNP.

报告简介: Understanding a deuteron is understanding nuclear systems. The mechanism that makes a deuteron the only bound two-nucleon system is due to the tensor force in the nucleon-nucleon interaction. The tensor interaction cause strong binding by bridging low (below the Fermi surface) and high (above the Fermi surface) momentum components of the wave function. This mechanism is basically common among all the nuclei and explains many aspects of nuclear systems, such as the quenching of single-particle spectroscopic factors.

The above argument implies possible manifestation of the deuteron-like correlation in nuclei, but it has been hardly investigated in the long history of nuclear physics. Motivated by the ab-initio calculation by the Illinois group entitled "Femtometer toroidal structure in nuclei", I have been thinking to experimentally approach the deuteron-like correlation in nuclei and, with my colleagues, have initiated the knockout reaction studies under the ONOKORO project.

In the first part of the seminar, I will review the tensor-force drive stabilization mechanism of a deuteron. It will be followed by recent topics related the deuteronlike correlation including the short-range correlation experiments and the deuteron knockout experiments under the ONOKORO project.