RCNP
NUCLEAR PHYSICS
THEORY SEMINAR

Title: Photodisintegration cross section of ^{9}Be up to 16 MeV in the $\alpha + \alpha + n$ three-body model

Speaker: Yuma Kikuchi (Osaka City University)

Date / Time: Tuesday, June 27, 2017, at 13:30

Place: Lecture room 1, 6th floor, RCNP

Abstract:

The photodisintegration cross section of ^{9}Be exhibits two aspects in two different energy regions. In the low-energy region up to E_g = 6 MeV, the cross section is explained by the transition strengths into the excited resonant states of ^{9}Be, while the dipole transition into the non-resonant continuum states dominates the cross section in the energy region of E_g > 6 MeV.

In this talk, we investigate the photodisintegration of ^{9}Be in the energy region lower than E_g = 16 MeV by using the a + a + n three-body model and the complex scaling method. We discuss the structure of excited resonant states, which are observed in the cross section. In particular, the virtual-state character of the first excited $1/2^{+}$ state will be discussed. Furthermore, we also discuss the excitation mechanism for E_g > 6 MeV, and it is shown that the dipole strength at E_g ~ 8MeV is understood to be caused by the single-neutron excitation from the ^{8}Be (2^{+}) x $p_{3/2}$ configuration in the ground state.

Reference

[1] M. Odsuren, YK, T. Myo, M. Aikawa, and K. Kato, Phys. Rev. C**92**. 014322 (2015).
[2] YK, M. Odsuren, T. Myo, and K. Kato, Phys, Rev. C**93**, 054695 (2016).

Contact persons: Masahiro ISAKA