

Studies of hypernuclei with the AMD method

Monday, 28 October 2013 15:10 (20 minutes)

In this talk, we will discuss structure of Λ hypernuclei with mass number $A \simeq 20$, so called $p - sd$ shell Λ hypernuclei based on the antisymmetrized molecular dynamics (AMD) calculation.

One of the unique and interesting aspects of hypernuclei is structure change caused by hyperons as an impurity in nuclei. In p -shell Λ hypernuclei, experimental and theoretical studies have revealed a couple of interesting structure changes such as changes of deformation and shrinkage of the inter-cluster distance.

In sd -shell Λ hypernuclei, we can expect various structure changes depending on the structure of the core nuclei, since sd -shell normal nuclei have various structure such as pronounced cluster structure, triaxial deformation and coexistence of shell-model like and cluster structure in ground and low-lying states.

To reveal such phenomena, we have extended the AMD to hypernuclei. The AMD can describe various nuclear structures without any assumption on clustering and deformation of nuclei. In this talk, we will discuss possible structure changes by adding Λ in Be and Ne hypernuclei based on the AMD calculation. Furthermore, we will show a possibility to study the nuclear (triaxial) deformation of Mg by using Λ as a probe.

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