Structure of $\Xi$ hypernuclei and $\Xi N$ interaction

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It is of importance to study baryon-baryon interaction in unified way. Especially, the information on interaction of $S=2$ sector is important for the study of EoS of neutron star. For this purpose, it is necessary to study the structure of double $\Lambda$ hypernuclei and $\Xi$ hypernuclei. Along this line, it is planned to produce $S=-2$ hypernuclei at J-PARC. Then, recently, we had observed $\Xi$ hypernucleus as a bound state such as $^{14}\text{N}+\Xi$ system by emulsion experiment. From this experimental data, we come to some questions: (1) What kind of spin-parity did they observe? (2) From the data, what kind of $\Xi N$ interaction did we obtain? (3) what kinds of $\Xi$ hypernuclei do we need to have for the further $\Xi N$ interaction?

In this session, I answer these questions and discuss with participants.