

Borromean Feshbach resonance in ^{11}Li studied via $^{11}\text{Li}(p,p')$

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We analyzed the $^{11}\text{Li}(p,p')$ reaction at 6 MeV/nucleon by using a microscopic continuum-discretized coupled-channels method, in which ^{11}Li is described by a $^9\text{Li} + n + n$ three-body model. In this analysis, we found a dipole resonance of ^{11}Li , and the resonance can be interpreted as a bound state in the $^{10}\text{Li} + n$ system, that is, a Feshbach resonance in the $^9\text{Li} + n + n$ system. For ^{11}Li , the $^{10}\text{Li} + n$ threshold is open above $^9\text{Li} + n + n$ one, which reflects a distinctive property of the Borromean system. Thus we refer to this resonance as a Borromean Feshbach resonance. The calculated cross sections by taking into account the resonance and nonresonant continuum reproduce the experimental data recently observed. In this conference, we will show the results and discuss properties of the Borromean Feshbach resonance.

Summary

Primary author: Dr MATSUMOTO, Takuma (Kyushu University)

Co-authors: Dr TANAKA, Junki (TU Darmstadt); Prof. OGATA, Kazuyuki (RCNP, Osaka University)

Presenter: Dr MATSUMOTO, Takuma (Kyushu University)

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