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Subsystem correlations in soft $E1$ excitation of ^{11}Li YUMA KIKUCHI, Hokkaido University, TAKAYUKI MYO, Osaka Institute of Technology, MASAAMI TAKASHINA, Research Center for Nuclear Physics (RCNP), KIYOSHI KATŌ, Hokkaido University, KIYOMI IKEDA, The Institute of Physical and Chemical Research (RIKEN) — The ^{11}Li nucleus has characteristic features of neutron-rich nuclei such as two-neutron halo structure and large s -wave mixing in the ground state, and has been studied with keen interest from both theoretical and experimental sides. Experimentally, the Coulomb breakup reactions have been performed to investigate the exotic features of ^{11}Li , and significant $E1$ strength was measured at low excitation energy. However, the nature of this soft $E1$ excitation for ^{11}Li is not clearly understood. To understand the nature of the soft $E1$ excitation, it is necessary to understand the complicated structure of ^{11}Li , which contains both $^9\text{Li}-n$ and $n-n$ correlations. In the present study, we investigate soft $E1$ excitation for ^{11}Li based on the core+ $n+n$ three-body model. We analyze the $E1$ strength as a function of relative energies in binary subsystems in ^{11}Li , and discuss the correlations of $^9\text{Li}-n$ and $n-n$ subsystems through the soft $E1$ excitation.

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