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Three α linear-chain structure in ^{13}C NAOYA FURUTACHI, MASAAKI KIMURA, Hokkaido University — The realization of linear-chain configurations of α clusters has been a long-standing subject of nuclear structure study. Recently, the linear-chain structure has been discussed in $N > Z$ C isotopes, and candidates for that structure have been suggested in ^{13}C based on the systematic search of multi-particle transfer reactions. In the past, the linear-chain structure was suggested for 0_2^+ state of ^{12}C , which is now recognized as an α -condensed state. It is interesting to investigate how the additional one neutron change this structure and other cluster states in ^{12}C , and whether the linear-chain structure is stabilized or not. We have investigated the structure of ^{13}C focusing on the linear-chain structure of 3α cluster by using a microscopic $3\alpha+n$ model. We describe the 3α wave function by using the generator coordinate method (GCM), and the neutron wave function is optimized for each basis of GCM. In this talk, structures of several rotational bands obtained in this calculation are analyzed, and the realization of the linear-chain structure is discussed.

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