Binary and ternary clusterizations in superdeformed and hyperdeformed states *

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We have performed systematic calculations in order to determine the allowed and forbidden cluster-configurations in some light nuclei. All the possible binary clusterizations, as well as those ternary ones were considered, which contain a double-magic cluster. The ground state and superdeformed state of the ^{36}Ar, ^{40}Ca, ^{60}Zn nuclei were investigated [1,2], in each case there are experimental evidences for the existence of the superdeformed bands. Predicted hyperdeformed states were also considered. A microscopic selection-rule was applied [3], and the results are combined with the energetic preferences obtained from empirical and/or dinuclear system model calculations.

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