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A cluster model of ^{6}He JEREMY ARMSTRONG, NSCL and Department of Physics and Astronomy, Michigan State University, ALEXANDER SAKHARUK, NSCL, Michigan State University, VLADIMIR ZELEVINSKY, NSCL and Department of Physics and Astronomy, Michigan State University — Small nuclei provide an ideal testing ground of few-body theories. ^{6}He is particularly interesting in that it shows an extended particle distribution similar to a halo nucleus, is loosely bound, and is a Borromean system. We apply the Brink Formalism in secondary quantization to study the structure of ^{6}He. This formalism allows for the proper treatment of Fermi statistics and correct projection into eigenstates of angular momentum. The alpha plus dineutron configuration and "cigar" (neutron, alpha, neutron chain) configuration were studied to obtain binding energies, charge radii, matter radii, and B(E2) for ^{6}He. We discuss the relative weight of both configurations as well as the size of the interference term between them in the overall ^{6}He wavefunction.

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