

Abstract Submitted
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Rotational Analysis of Beryllium Isotopes Using JISP16 and Daejeon16 Interactions¹ JULIE BUTLER, Erskine College/University of Notre Dame, MARK A. CAPRIO, PATRICK J. FASANO, University of Notre Dame, PIETER MARIS, JAMES P. VARY, Iowa State University — Rotational bands emerge in *ab initio* no core configuration interaction (NCCI) calculations in several beryllium isotopes. This is shown by rotational patterns in excitation energies, electromagnetic moments, and electromagnetic transitions as functions of the angular momentum. In order for NCCI calculations to correctly describe the nucleus, the NCCI calculation must be based on a realistic nucleon-nucleon interaction. The nucleon-nucleon interaction JISP16 has been previously used to calculate the rotational bands in beryllium isotopes. However, a new nucleon-nucleon interaction, Daejeon16, has been shown to provide more accurate ground state energies of light nuclei. The two nucleon-nucleon interactions, JISP16 and Daejeon16, are used to describe rotational bands of the beryllium isotopes ${}^7\text{Be}$, ${}^8\text{Be}$, and ${}^9\text{Be}$. For each isotope and interaction, rotational bands are determined using a range of basis parameters to determine which interaction yields rotational band parameters which most closely match experimental values. Various methods of extrapolation are used to determine converged values of rotational band parameters.

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