Nuclear Theory

Structure of $^{71-78}$Ga isotopes in $f_{5/2}pg_{9/2}$ and $fpg_{9/2}$ spaces

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We have performed comprehensive set of shell model calculations for Ga isotopes including high-spin states with three different effective interactions. This work will add more information in the earlier work by Cheal {\it et al.} for odd-even Ga isotopes [Phys. Rev. Lett. 104, 252502 (2010)] and Man\'e {\it et al.} for odd-odd Ga isotopes [Phys. Rev. C 84, 024303 (2011)], where only few excited states are studied in $f_{5/2}pg_{9/2}$ space. For lighter isotopes fpg interaction is better and for heavier isotopes jj44b is quantitatively better than JUN45. These results show that limitation of existing interactions and calling for further improvements to predict nuclear structure properties of Ga isotopes.

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