Application of the Extended Pairing Model to Heavy Isotopes
VESSELIN GUEORGUIEV, Cal State Univ-Stanislaus, FENG PAN, Liaoning Normal University, Dalian 116029, China, JERRY DRAAYER, Louisiana State University, Baton Rouge, LA — Relative binding energies (RBEs) within three isotopic chains ($^{100-130}$Sn, $^{152-181}$Yb, and $^{181-202}$Pb) have been studied using the exactly solvable extended pairing model (EPM) [Phys. Rev. Lett. 92 (2004) 112503]. The unique pairing strength G, which reproduces the experimental RBEs, has been determined. Within EPM, log(G) is a smooth function of the model space dimension dim(A), as expected for an effective coupling strength. In particular, for the Pb and Sn isotopes G can be described by a two parameter expression that is inversely proportional to the dimensionality of the model space, $G = \alpha \, \dim(A)^{-\beta}$ with $\beta \approx 1$. PACS Classification: 21.10.Dr Binding energies, 71.10.Li Pairing interactions in model systems, and 21.60.Cs Shell model.

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