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Shell-model aspects of the p-shell hypernuclei[1]

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Calculations using $p^n s_Y$ and $p^n p_Y$ bases (Y = Λ and Σ) have been quite successful in explaining data, $\gamma-$ray data in particular, for p-shell hypernuclei. The $p^n p_Y$ basis, however, needs to be augmented by states with an s_Y coupled to $1\hbar\omega$ states of the nuclear core, with the elimination of spurious center-of-mass states, to make a complete $1\hbar\omega$ hypernuclear basis. I hope to be able to show the results from such calculations which are necessary to describe the particle decay of directly produced hypernuclear states and the structure of low-energy states of non-normal parity.

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