

$$\text{Re} \langle \text{HFB} | N_n N_p | \text{HFB} \rangle = N_n N_p. \quad (9)$$

In describing the excited states by the quasiparticle method based conceptually on ideas of reduced density matrices and transition amplitudes, a very consistent definition of spurious states can be reached which for higher excitations basically differs from the usual one.

References

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3.5. Investigation of the low energy spectrum in $^{93}\text{Nb}^*$

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3.6. Projection of angular momentum from the generator coordinate wave function

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3.7. Pairing vibrational states in Pb and Sn isotopes**

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3.8. A formula to calculate particle-hole excited states if the two-body density matrix of the ground state is known

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3.9. Three-particle states in the semimicroscopic model

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In nuclei with three particles (holes) away from a single-closed shell or a good subshell, the model of coupling a three-particle (hole) cluster to the quadrupole vibrational field was introduced in order to include the anharmonic structure of the neighbouring even nuclei as well as additional states based on broken and promoted pairs.¹⁻⁵⁾ So far this model has been successfully applied to $^{51,53,55}\text{Mn}^{5)}$, $^{65,67,69}\text{Ga}^{5)}$, $^{107,109}\text{Ag}^{5)}$, $^{123,125,127}\text{I}^{5)}$ and $^{193,195,197,199}\text{Au}^{1-4)}$. The success of the model is reflected in reproducing the global structure and the properties of the ground and excited states; this means that the overall agreement with experiment for low lying states is rather good (energy spectra, $B(E2)$ and $B(M1)$ values, electric

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