

Pairing and vibrational correlations in the higher Tamm-Dancoff approximation (HTDA) approach

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Abstract: The higher Tamm-Dancoff Approximation (HTDA) is extended to include vibrational correlations with or without pairing correlations. The residual interaction in use is of the delta (in the $T=1$ channel) plus multipole-multipole type. In this paper we have limited our study to the mere case of isoscalar quadrupole correlations. The approach is illustrated by the consideration of ground state and isoscalar giant quadrupole resonance properties in the Ca^{40} nucleus. © 2010 The American Physical Society.

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