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Predicting magic numbers of nuclei with semi-realistic nucleon–nucleon interactions

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In Fig. 11, the Z- or N-dependence of the shell gap was depicted via the difference of the s.p. energies \( \delta \Delta \varepsilon_{\tau_z}(j_2-j_1) \) \((\tau_z = p, n)\), which is defined as \( \Delta \varepsilon_{\tau_z}(j_2-j_1) = \varepsilon_{\tau_z}(j_2) - \varepsilon_{\tau_z}(j_1) \) is the shell gap; i.e., the s.p. energy difference between the orbitals \( j_1 \) and \( j_2 \). All the s.p. energies were obtained from the spherical Hartree–Fock (HF) calculations with the semi-realistic M3Y-P6 interaction. Contributions of the tensor force \( v^{(TN)} \) and of the one-pion exchange part of the central force \( v^{(C)}_{OPEP} \) to \( \delta \Delta \varepsilon_{\tau_z}(j_2-j_1) \) were displayed as well. While the orbitals \( j_1, j_2 \) and the relevant nuclei \( (Z_a, N_a), (Z_b, N_b) \) were annotated in the figure, the orbitals for the results shown in the seventh row, \( \delta \Delta \varepsilon_p \) between \( ^{34}\text{Si} \) and \( ^{42}\text{Si} \), were incorrect. The figure with the correct annotation is presented here. This error does not influence any arguments.

![Fig. 11. Difference of the shell gaps between two members of isotopes or isotones \( \delta \Delta \varepsilon_{\tau_z}(j_2-j_1) \) (open bars), with the contributions of \( v^{(TN)} \) (red filled bars) and \( v^{(C)}_{OPEP} \) (red hatched bars), obtained from the HF results with M3Y-P6.](image)

The authors apologize for the error.