

Comment on "Properties of the $^{208}\text{Po}(0^+, T=22)$ Double Isobaric Analog State"

With the report¹ of the double isobaric analog state (DIAS) in ^{208}Po found via the reaction $^{208}\text{Pb}(\pi^+, \pi^-)^{208}\text{Po}$, it was also mentioned that its excitation energy corresponded to an unusual value for b/c , the ratio of two coefficients of the isobaric mass equation, as well as not fitting Hartree-Fock expectations. In this Comment we wish to point out that the position of the DIAS does not at all coincide with Coulomb-energy-displacement (ΔE_C) systematics either.

This can be seen in the plot of $\Delta E_C \times A^{1/3}$ vs A in Fig. 1. Although data are sparse in this higher- A region, it is possible to construct these systematics which are completely analogous with those established at lower A .^{2,3} One sees that the values for pairs from Os-Ir to Pb-Bi lie close to the predicted nearly horizontal contours. The $\Delta E_C \times A^{1/3} (^{208}\text{Pb}-^{208}\text{Bi}) = 111.6$ MeV calculated from data used in Ref. 1 is also near its solid

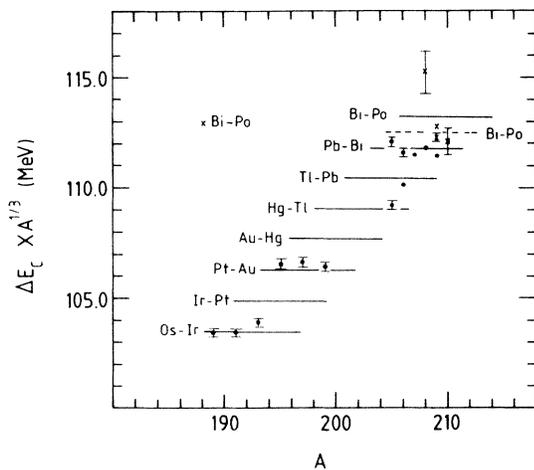


FIG. 1. Plot of experimental $\Delta E_C \times A^{1/3}$ vs A . The solid lines were obtained from the fit $\Delta E_C = 1.412(\bar{Z}/A^{1/2}) - 0.791$ MeV. Errors < 0.1 MeV are not indicated.

line in Fig. 1. Just beyond Pb-Bi, it is generally thought that the increment in ΔE_C should be somewhat diminished. This is the case for the three Bi-Po points at $A = 209$ ^{4,5} and 210 ⁶ through which we have placed the dashed line. The large deviation of $^{208}\text{Bi}-^{208}\text{Po}$ from these systematics is unique among all $\Delta E_C \times A^{1/3}$ vs A .³ If the position of the DIAS in ^{208}Po were 400–500 keV lower, the $\Delta E_C(\text{Bi-Po})$, b , c , b/c , and $\Delta_2 = M(\text{Pb}) - M(\text{Po})$ would better agree with what at the present time is expected for these quantities.^{1,7}

In view of the important theoretical conclusions⁸ that have been drawn from this measurement, further work on ^{208}Po and other nuclei in this region would be of considerable interest.

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