Erratum

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Erratum: Probing isospin symmetry in the (^{50}Fe, ^{50}Mn, ^{50}Cr) isobaric triplet via electromagnetic transition rates

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The published $B(E2\downarrow: 2^+ \rightarrow 0^+)$ value of 237(8) e^2fm^4 for ^{50}Mn [1] was obtained by using the measured lifetime value of the first 2^+ state in ^{50}Mn and the relative intensities of 64.1(12) and 100(2) for the 149 keV and 800 keV γ-decays, respectively taken from a table in Ref. [2]. With this note, we clarify that a choice was made in 2018 to consider the latest γ-ray intensities available and obtain $M(E2)$ value for the $2^+ \rightarrow 0^+$ decay in ^{50}Mn. Here, we consider the current evaluated relative γ-ray intensities given in NNDC [3], i.e., 100 (9) and 64 (8) for the 149 keV and 800 keV γ-decays, respectively. This new analysis lowers the data point for ^{50}Mn given in Ref. [1] by 20% with a value of 28 efm^2 as shown in Fig. 1 (green square).

It should be noted that the uncertainties in matrix elements presented in Ref. [1] were higher by a factor of two due to a typo in the manipulation of plots. This is now is corrected in Fig. 1, showing the correct uncertainties.

Figure 1 indicates that the original conclusion drawn in Ref. [1], i.e., the linear $M(E2)$ versus T_z curve for A=50 nuclei, may still be valid for the updated data points with the correct uncertainties and using the evaluated γ-ray intensities for ^{50}Mn from NNDC [3]. However, the new data point for ^{50}Mn (in green in Fig. 1) strongly suggests that the $M(E2)$ versus T_z curve is more likely to be non-linear. This warrants new simultaneous measurements of electromagnetic transition rates in the A=50 triplet using the same experimental setup to eliminate systematic errors and investigate the non-linearity. Such measurements will be crucial to critically assess the level with which isospin symmetry breaking occurs in mass 50 nuclei.

It is worth noting that the data presented in a table and a figure are inconsistent in Ref. [2]. We would like to thank Prof. R. Wadsworth for the discussions prompting this note.

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[1] M.M. Giles *et al.*, Phys. Rev. C **99**, 044317 (2019).

[2] A. Schmidt *et al.*, Phys. Rev. C **62**, 044319 (2000).

[3] http://www.nndc.bnl.gov/ensdf/.

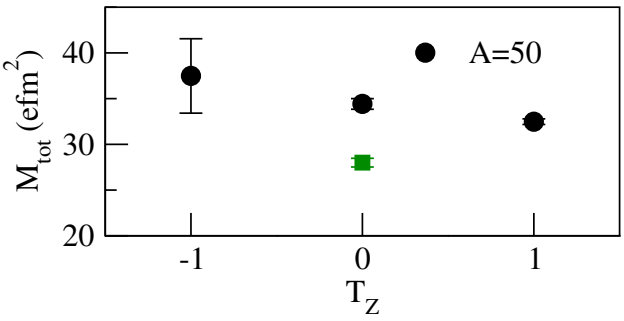

FIG. 1: The matrix element $M_{\rm tot}$ ($M(E2)$) as a function of T_z for the three $T = 1$, $A = 50$ isobaric nuclei. Data for ^{50}Mn has been obtained for the first time in 2018 [1]. Here, all the black data points are the same as those presented in Ref. [1] while the green data point for ^{50}Mn is new and corresponds to the updated analysis with branching ratios taken from Ref. [3].