Erratum: Comparison of yields of neutron-rich nuclei in proton- and photon-induced ^{238}U fission [Phys. Rev. C **94**, 054605 (2016)]

F. A. Khan, Debasis Bhowmick, D. N. Basu, M. Farooq, and Alok Chakrabarti

(Received 11 October 2017; published 23 January 2018)

DOI: [10.1103/PhysRevC.97.019903](https://doi.org/10.1103/PhysRevC.97.019903)

According to our present understanding, the fission products were identified by a radiochemical method in Ref. [1]. This means that the measured mass of a fission fragment is the mass of it after prompt neutron evaporation which is often referred to as the “postneutron mass.” In that case, the experimental fragment mass distribution shown in Fig. 1 of our paper should correspond to what is called “ A_{post} ” in the output of the GEF [2] code. In Fig. 1, we had wrongly plotted the GEF calculation curve corresponding to preprompt neutron emission fragment masses (and not the postneutron) for the fission fragments. In this Erratum we correct the plot for the GEF predictions [2] in Fig. 1.

There is, however, no problem as far as the plot for the GEF calculations of Fig. 2 of the original paper is concerned since it corresponds to what is called “ A_{pre} ” in the output of the GEF. In this case the time of flight (ToF) of the fission fragments was measured [3] which in turn provides the preneutron fragment masses because neutron emission is assumed as being isotropic during its flight path keeping the velocity of the fragments unaltered by neutron evaporation. The neutron evaporation “broadens” the fragment velocity distribution keeping the mean value equal to the fragment velocity at the time of scission.

The procedure adopted in our paper does not include any system that distinguishes pre- and postneutron fragment masses. It depends on the data which were used for the fitting procedure. However, it should better work for the preneutron evaporation distributions since Eq. (4) of the original paper is assumed to be symmetric about half of the compound nuclear mass. This in turn means that the choice of pre- or postneutron fragment mass would change the parameters involved slightly. But, if one considers the broadening of the fragment velocity distribution caused by neutron evaporation (which is higher at higher energies), there would be, in fact, very little change in the parameters as apparent from Fig. 3 of our paper. Moreover, if one plots the uncertainty in fragment mass arising out of its velocity distribution in the case of the ToF technique, the preneutron and postneutron cases would be almost indistinguishable. Nevertheless, we recognize the fact that another fine-tuning parameter to incorporate the effect of distinguishing pre- and postfragments may be useful, although it would have very little effect at higher energies due to velocity broadening, such as in Fig. 2 of our paper.

We thank Dr. C. Schmitt and Dr. K.-H. Schmidt for bringing this matter to our attention.

FIG. 1. Comparison of the measured mass yield distribution (full circles) [1] for ^{238}U fission induced by 12-MeV protons with the prediction (the solid line) of the three Gaussian formulas for $Y(A)$ and GEF predictions [2].

-
- [1] T. Ohtsuki, Y. Hamajima, K. Sueki, H. Nakahara, Y. Nagame, N. Shinohara, and H. Ikezoe, [Phys. Rev. C](#) **40**, 2144 (1989).
[2] K.-H. Schmidt, B. Jurado, and C. Amouroux, JEFF-Report No. 24 of the Nuclear-Energy Agency of the OECD, 2016 (unpublished).
[3] V. A. Rubchenya *et al.*, [Nucl. Instrum. Methods Phys. Res., Sect. A](#) **463**, 653 (2001).