Comment:

Dear authors, please see below the comments from the peer review.

Reviewer 1: Interesting paper. Some comments - For representativeness:

* Is there an international consensus on the threshold beyond which experiment could be used for adjustment? (0.5 value seems a bit low)

Thank you for your suggestion. To sustain this aim, different references can be considered. One of these has been reported in the references.

* what are the used covariance data? 80 groups?

Thank you, this is an important issue. For generating the covariance matrix, an 80 groups structure has been used. This has been specified adding a sentence in par.2.3.

* corresponding energy mesh structure?

Thank you, this question can be considered as a complement to the previous one. The energy mesh structure has been reported in another paper of the same authors (ENDF/B-VIII.0 nuclear data sensitivity and uncertainty analysis of key safety-relevant reactivity coefficients for the ALFRED core) which has been accepted as poster for the FR22 conference. Indeed, to avoid redundancy, in this paper the reference to the latter has been added.

Reviewer 2: Paper is in great shape. I have no substantial comments. Perhaps a minor fix of an acronym. High Priority List (HPL) --> High Priority Request List (HPRL)

Thank you for your remark. We apologize for the typo.

Reviewer 3: The paper introduces a detailed method of nuclear data adjustment based on existing experiments for ALFRED core.

The paper is well written and of high academic value. The comments below may be considered.

1. The abstract is too long. No need to introduce too much background information in it.

Thank for your suggestion. The abstract was shortened, eliminating background information included in the original version.

1. The whole paper seems too lengthy. It will look better if the paper is condensed, simplifying code details while focusing more on methods, academic points, and results analysis.

All the suggestions have been implemented; some paragraphs have been rearranged, and the paper condensed.

1. Long paragraphs should be split, such as the paragraph after Table 1, as well as long sentences, such as 'The so-called analytical approach ...integral data,'

As suggested, to improve the readability of the original paper, the paragraph 3, has been splitted in the new paragraphs 3, and 4.

1. It is said 16 iterations were conducted to get an optimized and coherent XS. It will be meaningful if a graph can be provided to show the convergence with 16 iterations, by either integral parameters or the XS itself of representative MT.

Thank you, for this suggestion. A plot has been included in the paper showing the evolution of the Chi-square as a function of the number of retained experiments (FIG.3, in par.6).

1. Fig.3 is a key figure and a main outcome of the paper. The line y=1 in Fig.3 should stand out more clearly, so that it is easier to see the comparison between the prior and posterior.

As suggested, to improve the clarity of graph, line y=1 was highlighted in fig.4

1. In '... elastic, capture, and v reactions of ...' if 'v' means the fission neutron number, it will be better to say '... elastic, capture cross sections and v of ...'

The sentence has been opportunely corrected in the text.

1. It seems that part (A) of Fig.4 uses the wrong magnitude in vertical axis. The text says -0.015 while the figure shows around -0.11.

Thank you for your remark. However, as showed in Fig. 5, the relative correction for 238U fission gravitates around -1.5∙10-2 in the energy range above the threshold (i.e., around 1 MeV), while it is its maximum value which has been found to be about -0.115 around 100 keV. A sentence has been included in the article

1. A figure should be added for U235, as is done for U238 by Fig.4. A figure is better than the many words in the text. So is to Pu239 and lead.

Thank you for your remark. Several figures have been included in the paper showing corrections for all the indicated isotopes.

We would like to thank the reviewers for their work in revising the paper, and for their valuable comments and suggestions.

Overall: Please upload a revised paper incorporating the minor corrections/comments above. If you have new relevant data, you are welcome to include these. Please upload a revised paper by 1st of April 2022.