

Pandemonium free data for the prediction of the antineutrino spectrum in reactors

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On behalf of the TAGS and eShape collaborations

Beta decay measurements that can provide data free from the Pandemonium effect [1] have shown to be very important in relation to the prediction of the antineutrino spectrum for reactors [2,3]. In this talk I will provide a summary of recent results obtained by our group in the application of the total absorption technique. I will also present a new setup recently developed for measurements of the shape of the beta spectrum of the most important contributors to the reactor antineutrino spectrum [4]. These measurements are considered of great relevance in this context [5] and can allow the validation of theoretical models used in the calculations of antineutrino spectra from reactors.

[1] J. C. Hardy et al., Phys. Lett. B 71, 307 (1977)

[2] M. Fallot et al., Phys. Rev. Lett. 109, 202504 (2012)

[3] M. Estienne et al., Phys. Rev. Lett. 123, 022502 (2019)

[4] V. Guadilla et al., JINST 19, P02027; G. Alcalá et al.; EPJ Web of Conferences 284, 08001 (2023)

[5] Technical Meeting on Antineutrino Spectra and Applications, International Atomic Energy Agency (IAEA), 2019, INDC-NDS-0786 Report (2019); 2nd IAEA Technical Meeting on Nuclear Data Needs for Antineutrino Spectra Applications, IAEA (2023); A. Sonzogni et al. Rev. C 91, 011301 (2015).

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