



Contribution ID: 57

Type: Oral

Total absorption measurements of the beta decay of relevant contributors to the antineutrino spectrum from reactors

Total absorption spectroscopy is presently the most reliable technique that provides beta decay transition probabilities free from the Pandemonium systematic error [1-3]. In this contribution we will present recent results from the work performed by our collaboration employing this technique, which is relevant for reactor applications and in particular for the prediction of the antineutrino spectrum in reactors. The measurements have been performed at the University of Jyväskylä IGISOL IV Facility [4] using trapassisted spectroscopy that provided radioactive beams of very high isotopic purity [5] and in certain cases has allowed us to disentangle beta decaying isomers.

These measurements have provided beta decay data that are a key ingredient in an updated antineutrino summation model [6] that presently provides the best description of the measured spectra by the Daya Bay collaboration. In this contribution results coming from our latest experiments will be presented [7-10].

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

[2] B. Rubio et al., Journal of Physics G: Nuclear and Particle Physics 31, S1477 (2005).

[3] A. Algora, B. Rubio and J. L. Tain, Nuclear Physics News, 28, 12 (2018)

[4] I. D. Moore et al., Nucl. Instrum. and Methods B 317,208 (2013)

[5] T. Eronen et al., Eur. Phys. J. A 48, 46 (2012)

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

[7] J. L. Tain et al., Phys. Rev. Lett. 115, 062502 (2015)

[8] E. Valencia et al., Phys. Rev. C 95, 024320 (2017)

[9] S. Rice et al., Phys. Rev. C 96, 014320 (2017)

[10] V. Guadilla, et al., Phys. Rev. Lett.

122, 042502 (2019)

Primary author: ALGORA, Alejandro (IFIC (CSIC-Univ. of Valencia), Valencia, Spain)

Presenter: ALGORA, Alejandro (IFIC (CSIC-Univ. of Valencia), Valencia, Spain)

Session Classification: Contributed Talks