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P4.080 **Combining different reactor experiments to resolve the spectral anomaly**

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Research at nuclear reactors led to significant progress during the past years. The latest generation of reactor experiments at km baseline did not only proof the small mixing angle θ_{13} to be larger than zero, but also measured the antineutrino spectrum produced by the reactor cores with unprecedented precision. Comparing the data to the predicted antineutrino spectra retrieved from measured β-spectra, an unexpected distortion was found. Observed in all recent measurements, the distortion is an event excess in the energy region from 5 to 7 MeV with about 4 σ significance. To date the cause of the spectral anomaly is not known and the theoretical assumptions and/or incomplete data inputs used to compute the spectrum predictions are discussed as possible origins. Suffering from large uncertainties, the use of nuclear databases to obtain insights on the substructures in the energy region of interest, do not allow to draw definite conclusions. Therefore, the direct comparison of experimental data collected with recent and future reactor neutrino detectors suggests itself as possibility to study the spectral shape bypassing the use of theoretical prerequisites. In particular the combination of measurements at reactor cores of different fuel composition could offer the opportunity to resolve the reactor shape anomaly. This poster will outline the method and its experimental potential, using the example of two detectors taking data at a commercial power plant and a research reactor highly enriched in ^{235}U, respectively.