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Determination of Ground State Feeding in Beta-decay using Modular Total Absorption Spectrometer PENG SHUAI, University of Tennessee, Knoxville, MTAS COLLABORATION — Determination of the branching ratio of ground state feeding in β-decay of fission products is of high importance in the investigations of reactor antineutrino anomaly and decay heat calculations. Ground state branches are important or even dominant in a number of such decays. However, the determination of ground state feeding probabilities encounters large systematic uncertainties due to the difficulty to precisely simulate the response function to low-energy electrons. Modular Total Absorption Spectrometer (MTAS), which is approximately one ton of NaI(Tl) hexagonal modules covering almost 4π solid angle, is a versatile spectrometer to detect the β-decay particles including gammas, electrons and beta-delayed neutrons with high efficiency. MTAS has capability to determine not only the β-decay branching ratios to the exited states free from Pandemonium effect, but also the ground state feeding which is not followed by coincidence gammas. In this talk, we use ^{88}Rb and ^{88}Kr decay as examples to demonstrate the ability of MTAS to determine the absolute ground state feeding branching with improved precision. We also discuss various possible sources that contribute to the systematic uncertainties in MTAS experiments.

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