STUDY OF THE BETA DECAY OF FISSION PRODUCTS WITH THE DTAS DETECTOR

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Most of the energy released in a nuclear reactor after shutdown comes from the β decay of fission products. The so-called "decay heat" can be calculated from the nuclear data corresponding to all nuclei produced during the fission process. The data available in the international databases that come from high resolution experiments with Ge detectors, may suffer systematic uncertainties due to the *Pandemoiunm* effect [1]. Total Absorption Gamma-Ray Spectroscopy (TAGS) has been shown to avoid this systematic uncertainty, and some of the most important contributors to the decay heat have been already measured with the TAGS technique, giving rise to important improvements in decay heat calculations [2],[3].
In this work we will present new TAGS measurements of several fission products considered priority one contributors to the decay heat problem in the list elaborated by the Nuclear Energy Agency [4]. In particular, we have studied the decays of the ^{103}Mo, ^{103}Tc, ^{100}Nb (also important contributor to the antineutrino spectrum [5]), ^{137}Xe, and ^{137}I (also interesting from the point of view of β delayed neutron emission). The experiment was performed in Jyväskylä with beams provided by the mass separator of the upgraded IGISOL IV facility [6]. The JYFLTRAP double Penning trap system [7] was used in order to purify the beams. The nuclei were implanted on a tape placed in vacuum at the center of the new Decay Total Absorption γ-ray Spectrometer (DTAS) [8], that was commissioned with radioactive beams in this experiment [9], and in front of a β plastic detector. The first TAGS analysis of the β-γ coincidences of these measurements will be reported on this contribution, showing the β intensity distributions obtained from the analysis in comparison with the current information available in the databases.

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