

INTERNAL γ DECAY AND THE SUPERALLOWED BRANCHING RATIO FOR THE β^+ EMITTER $^{38\text{m}}\text{K}^*$

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A measurement of the branching ratio for the superallowed β^+ decay of $^{38\text{m}}\text{K}$ was performed at TRIUMF's ISAC radioactive ion beam facility. Through the use of the 8π γ -ray spectrometer and SCEPTAR, an M3 internal γ -ray transition between the isomer and the ground-state of ^{38}K was observed. The internal-conversion corrected transition branching ratio was determined to be 330(43) ppm. This measurement leads to a revised superallowed branching ratio for $^{38\text{m}}\text{K}$ of 99.967(4) % and increases the $^{38\text{m}}\text{K}$ ft -value, the most precisely determined for any superallowed decay, by its entire quoted uncertainty to $ft = 3052.1(10)$ s.

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