

FINE STRUCTURE IN THE α DECAY OF ^{189}Bi ¹

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A detailed α -decay study was performed for $^{189\text{m,g}}\text{Bi}$ produced in the reaction of ^{95}Mo on ^{96}Mo at 418 MeV. Evaporation residues were selected in-flight using the Argonne fragment mass analyzer and implanted into a double-sided silicon strip detector. The correlation technique between implants and subsequent decays was used to observe new weak α branches of ^{189}Bi to excited states in ^{185}Tl . A more precise value of 182(8) keV for the excitation energy of the $\pi s_{1/2}$ intruder state in ^{189}Bi was determined. The α decay of the ^{189}Bi ($9/2^-$) ground state to the $\pi d_{3/2}$ level at 284 keV was observed for the first time. In addition, the α decay of ^{188}Bi was remeasured. Reduced widths for the α decays of odd-A $^{189-197\text{m,g}}\text{Bi}$ nuclei to states in their Tl daughters are discussed.

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