Isomeric ratios for nuclei produced

in the fragmentation of ^{208}Pb At 1 AGeV

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Isomeric ratios for a number of nuclei with Z=62-67 and A=142-152 were extracted. Production mechanism of these nuclei was fragmentation of the relativistic (1 GeV/u) ^{208}Pb beam from the SIS-18 synchrotron of the GSI facility on a ^{9}Be target. The nuclei of interest were selected using the FRagment Separator (FRS) and implanted into the 7mm thick plastic stopper. The gamma-rays from the decay of isomeric states in the implanted nuclei were measured by the RISING array [1]. Details of the experiment are described in Ref. [2]. In total 22 nuclides were detected, isomeric states were observed in 9 of them: $I^{\pi}=19^{-}$ in ^{152}Ho (τ= 8.4μs), $I^{\pi}=31/2^{+}$ in ^{153}Ho (τ= 229ns), $I^{\pi}=27^{+}$ in ^{148}Tb (τ=1.3μs), $I^{\pi}=10^{+}$ in ^{144}Gd (τ=145ns), $I^{\pi}=49/2^{+}$ in ^{147}Gd (τ=510ns), $I^{\pi}=11/2^{-}$ in ^{143}Eu (τ= 50μs), $I^{\pi}=8^{-}$ in ^{144}Eu (τ=1μs), $I^{\pi}=11/2^{-}$ in ^{145}Eu (τ=490ns), $I^{\pi}=10^{+}$ in ^{142}Sm (τ=480ns) and $I^{\pi}=7^{-}$ in ^{142}Sm (τ=170ns). Resulting data on isomeric ratios were compared with theoretical predictions, calculated using an abrasion-ablation approach [3]. Significant differences between experimental and theoretical results were observed, similarly as in Ref. [4,5]. Possible reasons for such behaviour, as for example the temperature of the fragments, were investigated.

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