

ELECTRON CAPTURE AND IONIZATION OF Pb IONS AT 33 TeV¹

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We have measured the total cross sections for electron capture by bare Pb⁸²⁺ ions and ionization of hydrogen-like Pb⁸¹⁺ ions at 33 TeV (160 GeV/A, $\gamma = 168$) in solid targets of Be, C, Al, Cu, Sn, and Au. The total capture cross sections are dominated by electron capture from pair production and are compared with theoretical calculations. The 1s ionization cross sections obtained are significantly smaller than those predicted by Anholt and Becker.⁶ The Pb radiative lifetimes extended by $\gamma = 168$ have a strong effect on the survival probability of excited states against ionization in high-Z solid targets.

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