

Charge-exchange efficiency and cross sections for lithium positive ions into cesium vapours

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By injecting positive stable lithium ions with energies ranging from 5 to 55 keV into cesium vapours we have determined the cross sections σ_{10} and σ_{0-1} for the reactions ${}^{6,7}\text{Li}^+ + \text{Cs} \rightarrow {}^{6,7}\text{Li} + \text{Cs}^+$ and ${}^{6,7}\text{Li} + \text{Cs} \rightarrow {}^{6,7}\text{Li}^- + \text{Cs}^+$ as well as the maximum negative equilibrium fractions F_{-100} . In addition, from the measured isotopic shift we have extrapolated the charge-exchange curves for ${}^{8,9,11}\text{Li}$, radioactive beams suitable for Tandem post-acceleration. The maximum negative equilibrium fraction for stable lithium at 5 keV is around 5%.