^{238}U(P,^{12}Be) 2012Kr04

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	J. H. Kelley, J. E. Purcell and C. G. Sheu	NP A968, 71 (2017)	1-Jan-2017

2012Kr04: XUNDL dataset compiled by TUNL, 2012.

The atomic $2s_{1/2}\rightarrow 2p_{(1/2,3/2)}$ transition in ^{12}Be was measured and used to deduced the ^{12}Be nuclear charge radius.

Beams of ^{12}Be nuclei were created at the CERN ISOLDE facility by impinging 1.4 GeV protons on a UC_x target. The ^{12}Be+ions were transferred to the RILIS (Resonance Ionization Laser-Ion Source) where the $2s_{1/2}\rightarrow 2p_{(1/2,3/2)}$ transition frequency was measured in both the linear and anticollinear directions. The nuclear charge radius was deduced from the ^{9}Be/^{12}Be isotope shift, $\delta\nu_{IS}^{9,12}$, the theoretical mass shift value $\delta\nu_{MS}^{9,12}$ and the ^{9}Be nuclear charge radius, $R_c(^{9}Be)$=2.519 fm *12* (1972Ja10).

The values are compared with Be isotope nuclear charge radii deduced from other measurements.

^{12}Be Levels

E(level)	J^{π}	$T_{1/2}$	Comments
0	0^+	21.50 ms *4*	$T_{1/2}$: From (2001Be53). R_c=2.503 fm *15* is deduced from the $2s_{1/2}\rightarrow 2p_{(1/2,3/2)}$ transition isotope shift, by comparison with ^{9}Be.