Coulomb excitation 2012Ba40

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	N. Nica	NDS 154, 1 (2018)	20-Nov-2018

Dataset based on unevaluated XUNDL file compiled by B. Singh (McMaster) from 2012Ba40.
2012Ba40: beam of ^{140}Ba at E=392 MeV, targets=0.9 mg/cm^2 ^{96}Mo on 1 mm Cu layer. ^{140}Ba beam was produced at ISOLDE-CERN facility by bombarding UC_x target with 1.4 GeV protons, followed by REX-TRAP extraction and REX-Linac acceleration. Gamma rays were detected using the MINIBALL array of 20 HPGe detectors. Projectile- and target-like recoil ions were detected in forward direction using DSSDs in coincidence with γ rays. Lifetime and static quadrupole moments of first 2^+ state were measured by DSAM and reorientation analysis of Coul. ex. yields. Higher second 2^+ and first 4^+ states, although not populated in the current experiment, were included in the analysis of Coul. ex. yields. Comparison with beyond-mean field and Monte Carlo shell-model calculations.

^{140}Ba Levels

E(level)	J^π	$T_{1/2}$	Comments
0.0	0^+		
602.4	2^+	7.2 ps *+15−6*	Q=−0.52 *34* (2012Ba40) B(E2)↑=0.484 *+38−101* (2012Ba40) $T_{1/2}$: from DSAM (2012Ba40), systematic uncertainty is included; other: 7.3 *+19−5* ps (from B(E2)↑). Q: from reorientation analysis of Coul. ex. yields. Diagonal E2 matrix element=−0.69 *45* (2012Ba40) from Coul. ex. yields.

$\gamma(^{140}$Ba)

E_γ	E_i(level)	J_i^π	E_f	J_f^π	Mult.
602.4 *1*	602.4	2^+	0.0	0^+	E2

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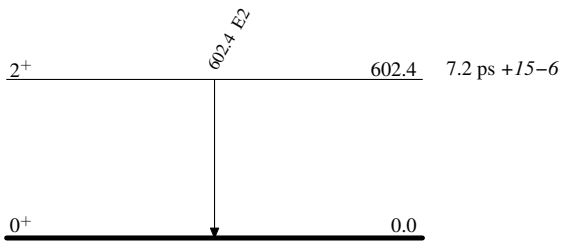
Level Scheme



$^{140}_{56}Ba_{84}$