

²⁵⁵Lr α decay (31.1 s) 2006Ch52,2008Ha31,2008An16

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	C. Morse	NDS 189,111 (2023)	23-Sep-2022

Parent: ²⁵⁵Lr: E=0; J ^{π} =1/2⁻; T_{1/2}=31.1 s 11; Q(α)=8556 7; % α decay=74 5

²⁵⁵Lr-T_{1/2}: Weighted average of 31.1 s 13 (2006Ch52), 31 s 2 (2008Ha31).

²⁵⁵Lr-Q(α): From 2021Wa16.

²⁵⁵Lr-% α decay: From 2008Ha31, where % ϵ =26 5.

2006Ch52: ²⁵⁵Lr isotope produced by ²⁰⁹Bi(⁴⁸Ca,2n) reaction at 217 MeV, in two separate experiments conducted at JYFL and GANIL. Recoil products separated from the primary beam in each. JYFL: Measured recoil products, E α , I α , and tof using a Multi-Wire Proportional Counter gas detector, two Double-Sided Si Strip Detectors (DSSSD) and a “box” of 28 pin-diodes surrounding the two DSSSDs. GANIL: Measured recoil products, E γ , I γ , E α , I α , ce, and tof using a “galotte” detector (mylar foil and micro-channel plate detector), a DSSSD, four cooled Si detectors (BEST) and four segmented Ge detectors (EXOAM).

2008An16: ²⁵⁵Lr produced by ²⁰⁹Bi(⁴⁸Ca,2n) at 214-244 MeV. Recoil products separated from the primary beam using the velocity filter SHIP. Measured recoil products, E α , I α , using a position-sensitive 16-strip silicon PIPS detector. Measured time-of-flight (tof) using electron foil detectors. Measured E γ , I γ in prompt and coincidence with alpha particles. Detectors: clover Ge detector. No gamma-rays were observed (I γ /I α <0.03).

2008Ha31: ²⁵⁵Lr isotope produced by ²⁰⁹Bi(⁴⁸Ca,2n) reaction, at 219 MeV, using the U400 cyclotron, Dubna. Activity was separated using the VASSILISSA fragment separator. Measured α particle-energies and intensities, conversion electrons, and γ rays with Si and Ge detectors.

Other references: 1971Es01, 2001Ga20, 2006An13.

²⁵¹Md Levels

E(level)	J ^{π}	T _{1/2}	Comments
0	(7/2 ⁻)	4.27 min 26	% α =10 1; % ϵ =90 1 configuration= $\pi 7/2^-$ [514] T _{1/2} ,% α : From 2006Ch52.
54 10	(1/2 ⁻)		configuration= $\pi 1/2^-$ [521] E(level): From ΔE_α .
≈135	(11/2 ⁻)		E(level): From 2006Ch52.

α radiations

E α^\dagger	E(level)	I α^\ddagger #	HF ‡	Comments
8290@ 5	≈135	1.7 6	≈70	E α : Weighted average of 8365 2 (2006Ch52), 8371 10 (2008Ha31), and 8373 5 (2008An16).
8366 2	54	93.3 21	2.36 24	
8420 10	0	≤5.0	≥59	

[†] From 2006Ch52, unless otherwise noted. Intensities have been renormalized to sum to 100.

[‡] The nuclear radius parameter r₀(²⁵¹Md)=1.467 15 is deduced from interpolation (or unweighted average) of radius parameters of the adjacent even-even nuclides (2020Si16).

For absolute intensity per 100 decays, multiply by 0.74 5.

@ Existence of this branch is questionable.