

²⁵⁵Lr α decay (2.54 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=38 10; J ^{π} =7/2⁻; T_{1/2}=2.54 s 4; Q(α)=8556 7; % α decay $\approx$ 40.0

²⁵⁵Lr-T_{1/2}: Weighted average of 2.53 s 13 ([2006Ch52](#)), 2.6 s 1 ([2008Ha31](#)), and 2.53 s 5 ([2008An16](#)).

²⁵⁵Lr-Q(α): From [2021WA16](#).

²⁵⁵Lr-% α decay: [2006Ch52](#) report %IT/% α $\approx$ 1.5, assuming a negligible β -decay branch.

Other: [2006An13](#).

[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 (EXOGAM).

[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.

²⁵¹Md Levels

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

[†] Band(A): π 7/2⁻ [514] band.

α radiations

E α	E(level)	I α ^{†#}	HF [‡]	Comments
$\approx$ 8422	$\approx$ 135	7.5 18	$\approx$ 3.2	E α : From 2006Ch52 .
8459 2	0	92.5 28	$\approx$ 0.71	E α : Weighted average of 8457 2 (2006Ch52), 8463 10 (2008Ha31), and 8467 5 (2008An16).

[†] From [2006Ch52](#). The 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 $\approx$ 0.4.

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Band(A): $\pi 7/2^-$ [514]
band

(11/2⁻) $\approx$ 135

7/2⁻ 0

²⁵¹₁₀₁Md₁₅₀
