

²⁵⁷Db α decay (0.67 s) 2009He20,2010He11

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	E. Browne, J. K. Tuli		NDS 114, 1041 (2013)	1-Mar-2012

Parent: ²⁵⁷Db: E=0+x; T_{1/2}=0.67 s 6; Q(α)=9206 20; % α decay \geq 87.0

²⁵⁷Db-T_{1/2}: Measured by 2009He20. Other: 0.36 s +22-9 (2010He11).

²⁵⁷Db-Q(α): From 2011AuZZ.

²⁵⁷Db-Predicted configuration=5/2[512] (2010He11).

²⁵⁷Db-E: \approx 370 keV (2010He11).

²⁵⁷Db-% α decay: Additional information 1.

2009He20,2010He11: ²⁵⁷Db produced in the ²⁰⁹Bi(⁵⁰Ti,2n) reaction with the ⁵⁰Ti beam delivered by the charge state injector of the UNILAC accelerator at GSI Darmstadt. Evaporation residues were separated by the velocity filter SHIP and implanted into a 16-strip Si PIPS detector. A box of six Si-wafers was used to measure escaping α -particles. A Ge clover detector consisting of four crystals was used to measure γ 's in coincidence with particles. Measured E α , E γ , $\alpha\gamma$ coin, half-lives, σ .

In 2010He11, half-life was measured from daughter product of ²⁶¹Bh decay.

2001He35: Measured α , E α .

2005KuZZ (earlier report: 2004HeZZ): Measured $\alpha\gamma$. Source implanted in a position-sensitive PIPS-detector, Ge-clover detector. Decay scheme agrees with 2001He35.

1986He28, 1985He22: ²⁰⁹Bi(⁵⁰Ti,2n), E=4.65-4.95 MeV/A. Measured α , SF, (α) γ , (α)x, time-of-flight, excit; surface barrier detectors. Reinvestigation with E=4.59-5.08 MeV/A has shown that two isomers of ²⁵⁷Db are involved (1999He11). Other: 1999He07.

²⁵³Lr Levels

E(level)	J π [†]	T _{1/2}	Comments
0	(7/2 ⁻)		Possible 7/2[514].
0+y	(1/2 ⁻)	1.49 s +30-21	J π : configuration=1/2 ⁻ [521] (2001He35,2005KuZZ). T _{1/2} : from 2001He35. Others: 1.3 s +6-3 (1985He22,1986He28), 1.7 s +20-6 (1989Mu09), 1.5 s +3-2 (1999He11).

[†] From Adopted Levels.

α radiations

E α	E(level)	Comments
9155 20	0+y	E α : from 2009He20. Others: 9168 20 (2010He11), 9163 10 (2001He35).