

Adopted Levels

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	E. Browne, J. K. Tuli	NDS 114, 1041 (2013)	1-Aug-2011

$Q(\beta^-) = -4568$ SY; $S(n) = 7879$ SY; $S(p) = 1640$ SY; $Q(\alpha) = 9619$ 50 [2012Wa38](#)

Estimated $\Delta Q(\beta^-) = 128$, $\Delta S(n) = 310$, $\Delta S(p) = 62$ ([2012Wa38](#)).

Additional information 1.

^{259}Db activity was produced by the $^{241}\text{Am}(^{22}\text{Ne}, 4n)$ reaction at $E = 118$ MeV. The identification of ^{259}Db is based on its genetic relationship with the known ^{255}Lr (31 s), and it has been established by an alpha-recoiled milking measurement ([2001Ga20, 2002Gu33](#)). The deduced $Q(\alpha)$ of ^{259}Db from $E\alpha = 9.47$ MeV ($Q(\alpha) = 9.62$ MeV) is in excellent agreement with theoretical predictions of $Q(\alpha) = 9.60$ MeV ([1985Wa03](#)), and $Q(\alpha) = 9.61$ MeV ([1997Mo25](#)).

Calculations (Theory):

Ground state properties: [1997Mo25](#), [1995Mo29](#).

Single-particle Nilsson levels: [1994Cw02](#).

Alpha-particle energy, half-life: [2009Do22](#), [2008Ro06](#), [2008Do12](#), [2007Zh41](#).

Spontaneous Fission: [2004Pe05](#).

Others: [2007Og05](#), [2009Og07](#).

[1994Cw02](#) have calculated the following single-particle level sequence: g.s., $9/2[624]; 0.26$ MeV, $7/2[514]; 0.29$ MeV, $5/2[512]; 0.41$ MeV, $1/2[521]$.

 ^{259}Db Levels

E(level)	J^π	$T_{1/2}$	Comments
0.0	$[9/2^+]$	0.51 s <i>I6</i>	$T_{1/2}$: From 2001Ga20, 2002Gu33. Alpha decay: $E\alpha = 9470$ ($Q(\alpha) = 9619$) keV (2001Ga20, 2002Gu33). Calculated values: $Q(\alpha) = 9655$ keV, $T_{1/2} = 0.0903$ s (2009Do22, 2008Do12). Other calculations: 2008Ro06, 2007Zh41. Calculated: $T_{1/2}(\alpha) = 0.14$ s, $T_{1/2}(\varepsilon + \beta^+) = 92$ s (1997Mo25); $T_{1/2}(\text{SF}) \approx 1 \times 10^2$ s (1988Lo03). J^π: Based on theory (2002Lo05, 1994Cw02). $J^\pi = (1/2^-)$ also predicted by theory (1997Mo25).