

Adopted Levels

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Y. Akovali	NDS 94,131 (2001)	1-Aug-2001

S(n)=6.7×10³ syst; S(p)=8.×10² syst; Q(α)=10320 15 [2012Wa38](#)

Note: Current evaluation has used the following Q record 6945 syst 945 syst 10220 syst [1995Au04](#).

Theoretical studies:

For calculation of fission barrier, see [1985Cw01](#), [2000Ad15](#), [2001Mo07](#).

Partial half-life for SF decay was calculated by [1985Lo17](#), [2000Ho27](#).

Assignments and production methods:

²⁰⁹Bi(⁵⁴Cr,n) parent of ²⁵⁸Db ([1981Mu06](#), [1984Og03](#), [1989Mu09](#)).
 α correlation chain through ²⁵⁸Db, ²⁵⁴Lr, ²⁵⁰Md, and ²⁵⁰Fm was established.

²⁰⁸Pb(⁵⁵Mn,n), grand parent of ²⁵⁸Rf ([1984Og03](#)).
 3.9-s SF activities observed by [1984Og03](#) was interpreted as due to SF decay of ²⁵⁸Rf which was produced by ε decay of 4.2-s ²⁵⁸Db, α-decay daughter of ²⁶²Bh. The ²⁴⁶Cf α's were also observed by [1984Og03](#) in the α-decay chain of ²⁶²Bh.

²⁰⁵Tl(⁵⁸Fe,n), grand parent of ²⁵⁸Rf ([1989I102](#)).
 Five fission tracks were detected from reaction products, and T_{1/2}(SF)=2.7 s +48-12 was determined by [1989I102](#).

²⁰⁹Bi(⁵⁸Fe,n) ²⁶⁶Mt(α), grand parent of ²⁵⁴Lr and ²⁵⁰Fm ([1997Ho14](#)).

²⁶²Bh Levels

Excited levels populated by ²⁶⁶Mt α decay are not adopted here because of possible multiple parent states with unknown level energies. See ²⁶⁶Mt α decay data set.

E(level)	T _{1/2}	Comments
0.0+x	102 ms 26	%α≤100 T _{1/2} : measured by 1989Mu09 . Authors' earlier measurements: 115 ms +231-75 (1981Mu06), 56 ms +53-18 (1986MuZX), 106 ms 30 (1988Mu15). Level is populated in ²⁶⁶ Mt α decay: the authors of 1997Ho14 observed that the 10682-, 10809- and 10848- keV α's from ²⁶⁶ Mt were correlated with the 9731-, 9831- and 10143- keV α's from ²⁶² Bh, and pointed out that the three correlated α's of ²⁶⁶ Mt possibly decay from different ²⁶⁶ Mt isomers. 1989Mu09 stated that there is no convincing evidence, but α correlations might suggest that the 102-ms state is the g.s. The α energy of Eα=10060, measured by 1989Mu09 , yields Q(α)(²⁶² Bh)=10216 40+E(²⁵⁸ Db level fed by 10060a)-E(102-ms ²⁶² Bh level); the Q(α) calculated from Eα=10143 of 1997Ho14 is Q(α)(²⁶² Bh)=10300+E(²⁵⁸ Db level fed by 10143a)-E(102-ms ²⁶² Bh level). Q(α)(²⁶² Bh)=10216 152 was recommended by 1995Au04 from Eα given by 1989Mu09 which is consistent with the Q(α) systematics shown by 1993Au05 . The Q(α) deduced from measured Eα and the Q(α) systematics suggest therefore, that energies of the parent and the daughter levels are close in values, and either of these levels may possibly be the ground state: E(102-ms ²⁶² Bh parent)-E(²⁵⁸ Db level fed by 10143a)=80 160. As pointed out by 1989Mu09 , there is no determining evidence. Only α decay from this state in ²⁶² Bh was observed; no SF decay was detected by 1984Og03 and 1989Mu09 . An upper limit of 20% was set by 1986MuZX . See also 1984Og03 .

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Adopted Levels (continued) ^{262}Bh Levels (continued)

<u>E(level)</u>	<u>T_{1/2}</u>	<u>Comments</u>
0.0+y	8.0 ms 21	<p>$\% \alpha \leq 100$</p> <p>T_{1/2}: measured by 1989Mu09. Earlier measurements: 1981Mu06, 1986MuZX, 1988Mu15. One photon at 382.9 in coincidence with an escape-α from this state was observed by 1984Mu07, and because of the short correlation time between the ^{266}Mt α decay and the α escape, 1989Mu09 suggested that the 8.0-ms state is probably the isomer. However, the 382.9γ has been tentatively reassigned to ^{258}Db decay (private communication from S. Hofmann; March 2000).</p> <p>E(level): the measured $E\alpha=10443$ decaying from this level yields $Q(\alpha)(^{262}\text{Bh})=10605+E(\text{level fed by } 10443a)-E(8.0\text{-ms level})$. If $Q(\alpha)(^{262}\text{Bh})=10216$ 152 (1995Au04), then $E(8.0\text{-ms level})-E(\text{level fed by } 10443a)=390$ 160.</p> <p>No SF decay was detected by 1989Mu09. An upper limit of 10% was given by 1989Mu09 for SF activities with T_{1/2}<100 ms. Other measurements: 1984Og03, 1986MuZX.</p>