^{260}Bh α decay (35 ms) 2008Ne01

History			
Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh	NDS 141, 327 (2017)	22-Mar-2017

Parent: ^{260}Bh: E=0; $T_{1/2}$=35 ms *+19−9*; Q(α)=10400 *50*; %α decay≈100.0

^{260}Bh-E: The 35-ms activity is assumed to belong to g.s. of ^{260}Bh.

^{260}Bh-$T_{1/2}$: From (implants)α-correlated events (2008Ne01).

^{260}Bh-Q(α): From 2017Wa10. Other: 10320 *30*, from average Eα=10.16 MeV *3* (2008Ne01) for four α decay events with Eα=10.17, 10.17, 10.19 and 10.13 MeV.

^{260}Bh-%α decay: %α≈100 for α decay of ^{260}Bh.

2008Ne01: production of ^{260}Bh in ^{209}Bi(^{52}Cr,n) reaction; ^{256}Db, ^{252}Lr and ^{248}Md through successive α-decay chain, and ^{256}Rf and ^{248}Fm through ε decays. E($^{52}Cr^{12+}$)=257.0 MeV beam provided by 88-Inch Cyclotron at LBNL. The nuclei were analyzed using Berkeley Gas-Filled Separator. Detectors: A focal plan Si strip detector and a Si-strip detector array, with a resolution of FWHM=55 keV. Eight correlated decay chains were detected, which are listed in ^{260}Bh Adopted Levels in the ENSDF database.

The alpha-particle energies measured from the eight chains are: 10.24, 10.17, 10.17, 10.08, 10.19, 10.13 and 10.03 MeV. 2008Ne01 assign a group of alpha-particle energies between 10.13 and 10.19 MeV to the same transition with an average of 10.16 MeV, assigned here as g.s. to g.s. alpha transition. The other three alpha energies may be transitions to other states in ^{256}Db, and left here as as unplaced transitions.

^{256}Db Levels

E(level)	$T_{1/2}$	Comments
0	1.6 s *+5−3*	%α=70 *11*; %ε=30 *11*; %SF=? E(level): the 1.6-s activity is assumed to belong to g.s. of ^{256}Db. $T_{1/2}$: from Adopted Levels. %α: from 2008Ne01, based on %ε=36 *12* (2001He35), thus %α=64 *12*, and %α obtained by 2008Ne01, which is not stated but probably is 76% *11*.

α radiations

Eα	E(level)	Iα‡	Comments
10.03×10^3†			
10.08×10^3†			
10.24×10^3†			
10.16×10^3 *3*	0	100	Eα: from average of four α decay events with Eα=10.17, 10.17, 10.19 and 10.13 MeV (2008Ne01). This α group is assumed to feed the g.s. of ^{256}Db. HF: value of 53 is quoted by 2008Ne01, without the method used to deduce this value is not given. Authors cite 1997Sm03 reference, but this paper deals with theoretical α-decay half-lives only for even-even alpha emitters.

† Observed only in one decay chain. This α group may be a transition to an excited state in ^{256}Db.

‡ For absolute intensity per 100 decays, multiply by ≈1.