

Adopted Levels, Gammas

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh and Jun Chen		NDS 116, 1 (2014)	31-Dec-2013

$Q(\beta^-)=10066$ 5; $S(n)=3046$ 5; $S(p)=16130$ SY; $Q(\alpha)=-9349$ 6 [2012Wa38](#)

Estimated $\Delta S(p)=400$ (syst,[2012Wa38](#)).

$Q(\beta^-n)=4659$ 5, $S(2n)=8290$ 4, $S(2p)=30960$ 500 (syst) ([2012Wa38](#)).

[1991Kr15](#): ^{85}Ge produced and identified in $^{238}\text{U}(p,F)$ $E=600$ MeV, at ISOLDE, CERN facility.

[1991Om01](#): $^{235}\text{U}(N,F)$.

^{85}Ge produced by [2008Ha23](#) through $\text{U}(p,F)$ and $\text{U}(d,F)$ reactions at 25 MeV.

[2013Ma22](#): proton beam was provided by the Oak Ridge Isochronous Cyclotron (ORIC) at the HRIBF-ORNL facility.

Target= $^{238}\text{UC}_x$. Fission fragment were ionized to charge state +1 then purified using H_2S gas, a mass pre-separator and electromagnetic separation. The purified beams were then sent to the Low-energy Radioactive Ion Beam Spectroscopy Station (LeRIBSS) and implanted in a moving tape collector (MTC). Measured E_γ , I_γ , E_β , $\beta\gamma$ -coin, half-life of ^{85}Ge g.s. using two plastic scintillation counters and four HPGe detectors. Comparison with theoretical calculations using gross theory of β decay, the finite-range droplet model and the continuum quasiparticle random-phase approximation.

Mass measurements: [2008Ha23](#) (JYFLTRAP, Penning-trap method at IGISOL facility in Jyvaskyla).

Precise mass measurement: [2008Ha23](#). Other: [2006Ha62](#).

[Additional information 1](#).

 ^{85}Ge LevelsCross Reference (XREF) Flags

- A** ^{85}Ga β^- decay (92 ms)
B ^{86}Ga β^-n decay (43 ms)

E(level)	J^π	$T_{1/2}$	XREF	Comments
0	$(3/2^+, 5/2^+)$	503 ms 18	AB	$\% \beta^-n=100$; $\% \beta^-n=16.5$ 23 (2013AgZY); $\% \beta^-2n=?$ E(level): it is assumed that the observed activity is associated with the g.s. J^π : from shell-model predictions (2013Ko31). Others: $5/2^+$ (systematics, 2012Au07), $1/2^+$ (predicted, 1997Mo25). $T_{1/2}$: measured by 2013Ma22 from β -gated time distribution of γ rays in ^{85}As and ^{84}As . Weighted average of 484 ms 9, 526 ms 22, 549 ms 24 and 444 ms 37 for the unresolved 100γ and 102γ , 116γ , 267γ and 395γ , respectively. 2013Ma22 quote weighted averaged value of 494 ms 8, but the evaluators obtain 503 ms 18 using LWM method from the same set of data. Others: 0.535 S 47 (1991Kr15) and 0.58 S 5 (1991Om01) are consistent with value from 2013Ma22 but less precise. $\% \beta^-n$ value is from neutron and β intensity measurement (2013AgZY) at JYFL facility using BELEN neutron counter and Si detectors for β . This value most likely includes β^-2n contribution, although, it is predicted to be negligible in theoretical calculations (1997Mo25) Other: 14% 3 (1991Kr15) agrees with the value from 2013AgZY . Additional information 2 .
107.2 1 250	$(5/2^+, 3/2^+)^{\dagger}$	<30 ns	AB B	$T_{1/2}$: from $\beta\gamma(t)$ or $\gamma\gamma(t)$ (2013Ko31).
472.1 1	$(3/2^+)^{\dagger}$		AB	
703.1 1			A	
895.2 1			A	
903.2? 1			A	
2348.2 1			A	

\dagger From shell-model predictions ([2013Ko31](#)).

Adopted Levels, Gammas (continued)
 $\gamma(^{85}\text{Ge})$

$E_i(\text{level})$	J_i^π	E_γ	I_γ	E_f	J_f^π
107.2	$(5/2^+, 3/2^+)$	107.2	1	0	$(3/2^+, 5/2^+)$
250		250	100	0	$(3/2^+, 5/2^+)$
472.1	$(3/2^+)$	364.9	1	107.2	$(5/2^+, 3/2^+)$
		472.1	1	0	$(3/2^+, 5/2^+)$
703.1		595.9	1	107.2	$(5/2^+, 3/2^+)$
		703.1	1	0	$(3/2^+, 5/2^+)$
895.2		788.0	1	107.2	$(5/2^+, 3/2^+)$
903.2?		796.0 [†]	1	107.2	$(5/2^+, 3/2^+)$
2348.2		2241.0	1	107.2	$(5/2^+, 3/2^+)$

[†] Placement of transition in the level scheme is uncertain.

Adopted Levels, Gammas

Legend

Level Scheme

Intensities: Relative photon branching from each level

 - - - - - \rightarrow γ Decay (Uncertain)
