^{9}Be(^{238}U,Fγ) 2018Si26

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Jun Chen, Balraj Singh	NDS 164, 1 (2020)	15-Feb-2020

2018Si26: E(^{238}U)=6.2 MeV/nucleon from GANIL facility. Target=^{9}Be, 2.3 mg/cm^2 thick. Fission products were identified and detected by mass, charge and atomic number using VAMOS++ spectrometer. The γ rays were detected by EXOGAM array of ten segmented clover Ge detectors. Measured Eγ, Iγ, $\gamma\gamma$- and (particle)γ-coin, level lifetimes by recoil-distance Doppler-shift (RDDS) method and analyzed using differential decay curve method (DDCM). Comparison with large-scale shell-model, and mean-field calculations.

^{98}Zr Levels

E(level)†	J$^\pi$‡	T$_{1/2}$#	E(level)†	J$^\pi$‡	T$_{1/2}$#	E(level)†	J$^\pi$‡
0	0$^+$		1843	4$^+$	5.2 ps *10*	3215	8$^+$
853@	0$^+$		2047	4$^+$		3811	8$^+$
1223	2$^+$	2.63 ps *55*	2277	4$^+$		3893	
1436@	0$^+$		2490	6$^+$	1.80 ps *62*	3984	10$^+$
1590	2$^+$		3064				
1806	3$^-$		3117	6$^+$			

† From Eγ data.
‡ As given by 2018Si26.
# From recoil-distance Doppler-shift (RDDS) method (2018Si26), and analysis by differential decay curve method.
@ Not directly observed by 2018Si26.

γ(^{98}Zr)

E$_\gamma$†	I$_\gamma$†	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$	Mult.	α‡	Comments
204	2 *1*	2047	4$^+$	1843	4$^+$			
242	10 *2*	2047	4$^+$	1806	3$^-$			
253	1.1 *3*	1843	4$^+$	1590	2$^+$	[E2]	0.0392	B(E2)(W.u.)=68 *22* (2018Si26) I$_\gamma$: from Iγ(253)/Iγ(620)=0.4 *1*/23.0 *7* (2017Ur03: Additional information 3.
368	1 *1*	1590	2$^+$	1223	2$^+$			
369	2.52 *26*	1223	2$^+$	853	0$^+$	[E2]	0.0109	B(E2)(W.u.)=28.3 *65* (2018Si26) I$_\gamma$: from Iγ(369)/Iγ(1223)=0.76 *7*/30.2 *8* (2017Ur03). Additional information 1.
434	1 *1*	2277	4$^+$	1843	4$^+$			
583	21 *3*	1806	3$^-$	1223	2$^+$			
620	62 *5*	1843	4$^+$	1223	2$^+$	E2		B(E2)(W.u.)=43 *14* (2018Si26) Additional information 4.
647	38 *4*	2490	6$^+$	1843	4$^+$	E2		B(E2)(W.u.)=103 *36* (2018Si26)
678	5 *2*	3893		3215	8$^+$			
687	2 *1*	2277	4$^+$	1590	2$^+$			
694	2 *1*	3811	8$^+$	3117	6$^+$			
725	30 *3*	3215	8$^+$	2490	6$^+$			
769	25 *12*	3984	10$^+$	3215	8$^+$			
825	3 *1*	2047	4$^+$	1223	2$^+$			
840		3117	6$^+$	2277	4$^+$			
1055	1 *1*	2277	4$^+$	1223	2$^+$			
1221	2 *1*	3064		1843	4$^+$			
1223	100	1223	2$^+$	0	0$^+$	E2		B(E2)(W.u.)=2.9 *6* (2018Si26) Additional information 2.

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^{9}Be(^{238}U,Fγ) 2018Si26 (continued)

$\gamma(^{98}Zr)$ (continued)

E_γ [†]	I_γ [†]	E_i(level)	J_i^π	E_f	J_f^π
1258	3 *1*	3064		1806	3^-
1321	2 *2*	3811	8^+	2490	6^+
1590	10 *2*	1590	2^+	0	0^+

[†] From 2018Si26, unless otherwise stated.
[‡] Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on γ-ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.

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Level Scheme

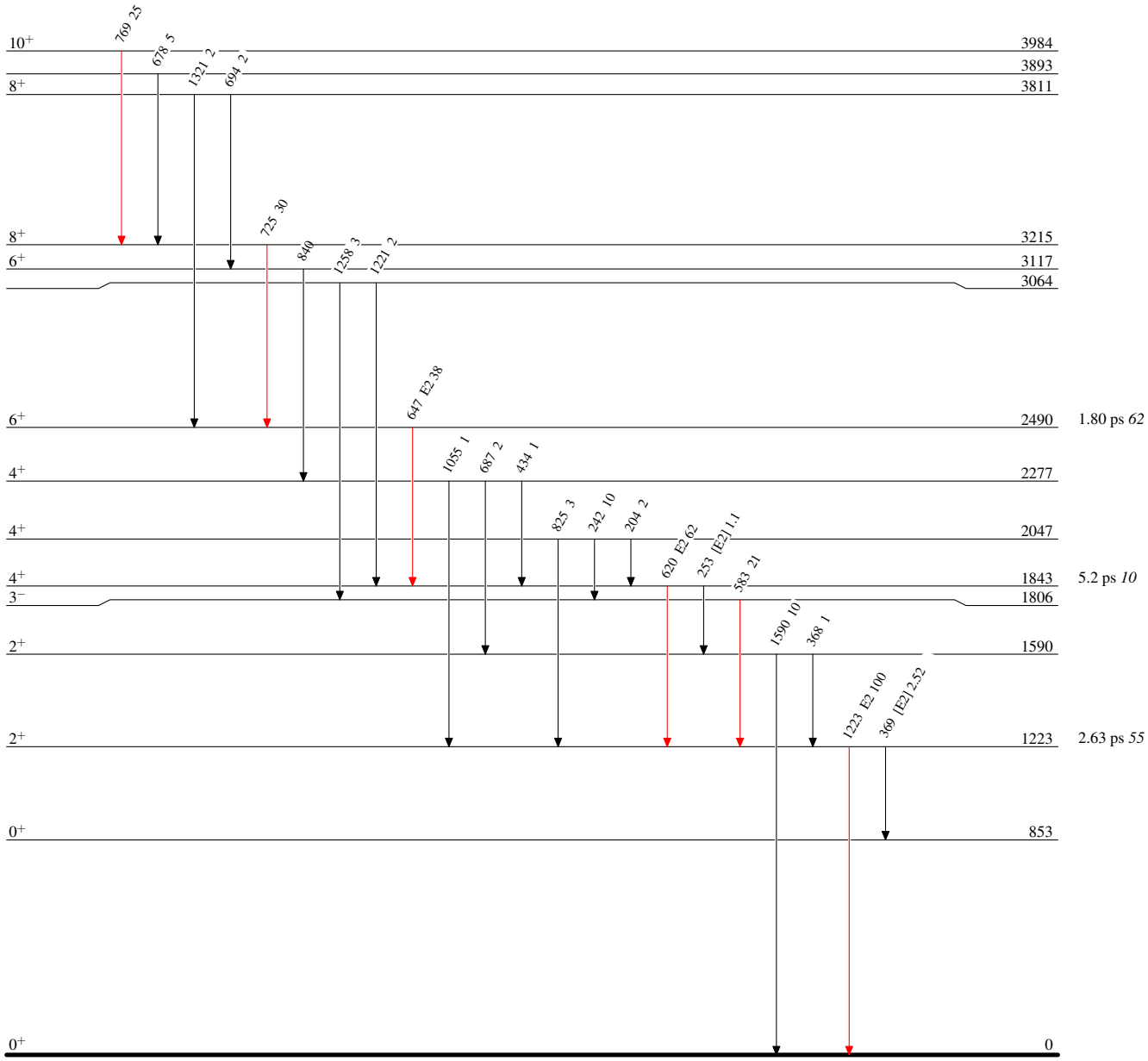
Intensities: Relative I_γ

Legend

$I_\gamma < 2\% \times I_\gamma^{max}$

$I_\gamma < 10\% \times I_\gamma^{max}$

$I_\gamma > 10\% \times I_\gamma^{max}$



$^{98}_{40}Zr_{58}$