

<sup>51</sup>V(<sup>28</sup>Si,2p2n $\gamma$ ) 2009Mu16

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	Alexandru Negret, Balraj Singh		NDS 114, 841 (2013)	30-Jun-2013

<sup>28</sup>Si beam produced at E=115 MeV by the 15UD Pelletron at the Inter University Accelerator Centre in New Delhi. The  $\gamma$ 's were detected using the Gamma Detector Array (GDA), consisting of 12 HPGe detectors (at 51, 98 and 144 angle with the beam axis) with a 14 element BGO multiplicity filter. Measured E $\gamma$ , I $\gamma$ ,  $\gamma\gamma$ - coincidence, lifetimes using the Doppler shift attenuation method.

<sup>75</sup>Br Levels

Additional information 1.

E(level)	J $\pi$ <sup>@</sup>	T <sub>1/2</sub> <sup>†</sup>	Comments
0 <sup>c</sup>	3/2 <sup>-</sup>		
119 <sup>b</sup>	(5/2 <sup>-</sup> )		
132 <sup>&amp;</sup>	(5/2) <sup>+</sup>		
155 <sup>a</sup>	(3/2) <sup>+</sup>		
220 <sup>&amp;</sup>	(9/2) <sup>+</sup>	31.7 <sup>‡</sup> ns 3	T <sub>1/2</sub> : 2009Mu16 quote 26.3 ns 14 with an incorrect source reference. Additional information 2. Q <sub>t</sub> =3.5 9.
374 <sup>a</sup>	(7/2 <sup>+</sup> )	57 <sup>‡</sup> ps 5	Q <sub>t</sub> =1.78 20.
518 <sup>c</sup>	(7/2 <sup>-</sup> )		
773 <sup>b</sup>	(9/2 <sup>-</sup> )	4.0 <sup>‡</sup> ps 4	Q <sub>t</sub> =2.2 +2-3.
783 <sup>&amp;</sup>	(13/2 <sup>+</sup> )	4.7 <sup>‡</sup> ps 4	Q <sub>t</sub> =2.6 3.
940 <sup>a</sup>	(11/2 <sup>+</sup> )	4.6 <sup>‡</sup> ps 9	Q <sub>t</sub> =1.99 +11-10.
1150 <sup>c</sup>	(11/2 <sup>-</sup> )		
1516 <sup>b</sup>	(13/2 <sup>-</sup> )	0.9 <sup>‡</sup> ps 3	Q <sub>t</sub> =3.2 +8-11.
1613 <sup>&amp;</sup>	(17/2 <sup>+</sup> )	0.78 ps +11-15	Q <sub>t</sub> =2.37 +17-22.
1791 <sup>a</sup>	(15/2 <sup>+</sup> )	0.75 ps 15	Q <sub>t</sub> =2.29 +2-3.
1897 <sup>c</sup>	(15/2 <sup>-</sup> )		
2355 <sup>b</sup>	(17/2 <sup>-</sup> )	0.80 ps +18-15	Q <sub>t</sub> =2.3 +4-5.
2658 <sup>&amp;</sup>	(21/2 <sup>+</sup> )	0.28 ps 6	Q <sub>t</sub> =2.18 +23-26.
2756 <sup>c</sup>	(19/2 <sup>-</sup> )		
2863 <sup>a</sup>	(19/2 <sup>+</sup> )	0.326 <sup>#</sup> ps 35	Q <sub>t</sub> =1.92 +23-20.
3274 <sup>b</sup>	(21/2 <sup>-</sup> )	0.49 ps +11-10	Q <sub>t</sub> =2.4 3.
3777 <sup>c</sup>	(23/2 <sup>-</sup> )		
3868 <sup>&amp;</sup>	(25/2 <sup>+</sup> )	97 fs 21	Q <sub>t</sub> =2.6 3.
4136 <sup>a</sup>	(23/2 <sup>+</sup> )		
4198	(25/2 <sup>+</sup> )	0.243 <sup>#</sup> ps +21-28	Q <sub>t</sub> =1.03 +6-4.
4349 <sup>b</sup>	(25/2 <sup>-</sup> )	0.21 ps +5-4	Q <sub>t</sub> =2.4 +5-4.
4968 <sup>c</sup>	(27/2 <sup>-</sup> )		
5188 <sup>&amp;</sup>	(29/2 <sup>+</sup> )	0.118 ps +28-21	Q <sub>t</sub> =1.86 +23-20.
5524	(29/2 <sup>+</sup> )		
5602 <sup>b</sup>	(29/2 <sup>-</sup> )	0.12 ps 3	Q <sub>t</sub> =2.1 3.
6234 <sup>c</sup>	(31/2 <sup>-</sup> )		
6624 <sup>&amp;</sup>	(33/2 <sup>+</sup> )	55 fs 14	Q <sub>t</sub> =2.2 3.
6937 <sup>b</sup>	(33/2 <sup>-</sup> )	62 fs +21-14	Q <sub>t</sub> =2.5 +2-5.
8270 <sup>&amp;</sup>	(37/2 <sup>+</sup> )	21 fs +7-6	Q <sub>t</sub> =2.5 +4-6.
8331 <sup>b</sup>	(37/2 <sup>-</sup> )	21 fs 7	Q <sub>t</sub> =3.9 +5-14.

Continued on next page (footnotes at end of table)

$^{51}\text{V}(^{28}\text{Si},2\text{p}2\text{n}\gamma)$  **2009Mu16 (continued)**

$^{75}\text{Br}$  Levels (continued)

E(level)	$J^\pi$ @	$T_{1/2}^\dagger$	Comments
9881 <sup>b</sup>	(41/2 <sup>-</sup> )	13.9 fs <sup>35</sup>	$Q_t=3.6$ 9.
10146 <sup>&amp;</sup>	(41/2 <sup>+</sup> )	0.09 <sup>#</sup> ps +I-5	$Q_t=0.87$ +20-7.
11649 <sup>b</sup>	(45/2 <sup>-</sup> )	0.13 <sup>#</sup> ps +I-5	$Q_t=0.9$ +9-I.
12100 <sup>&amp;</sup>	(45/2 <sup>+</sup> )		

† From DSAM (2009Mu16), unless otherwise stated.

‡ From Adopted Levels for  $^{75}\text{Br}$ .

# Effective half-life without correction for side feeding.

@ As proposed in 2009Mu16.

& Band(A): Band based on (5/2)<sup>+</sup>.

<sup>a</sup> Band(B): Band based on (3/2)<sup>+</sup>.

<sup>b</sup> Band(C): Band based on (5/2<sup>-</sup>).

<sup>c</sup> Band(D): Ground state band.

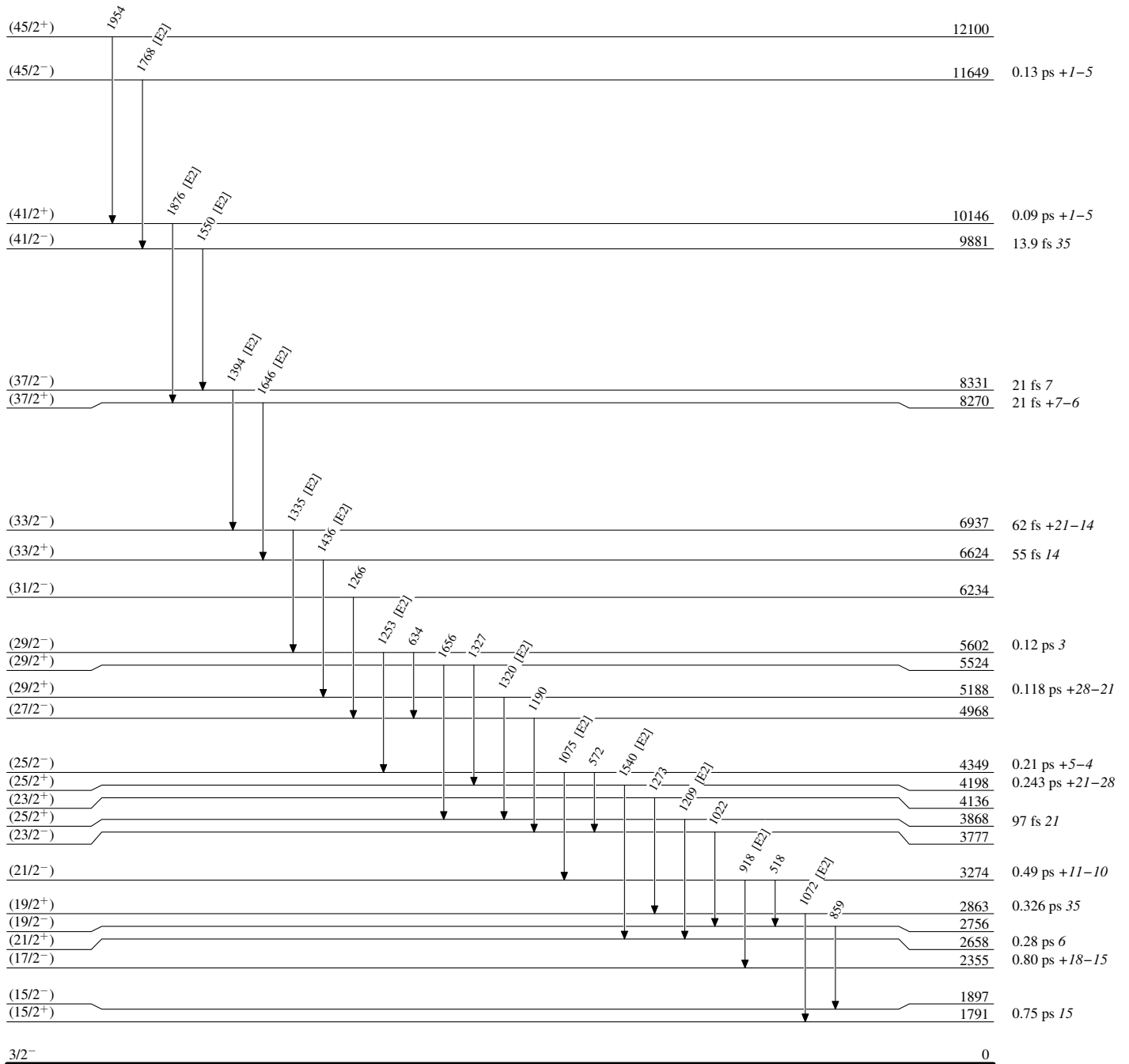
$\gamma(^{75}\text{Br})$

2009Mu16 extract B(E2) values for  $\Delta J=2$ , E2 transitions in their Table 1, but the evaluators cannot reproduce some of their values using their lifetimes and gamma-branching ratios from the Adopted dataset. It is possible that 2009Mu16 used a different set of gamma-branching ratios.

$E_\gamma$	$E_i(\text{level})$	$J_i^\pi$	$E_f$	$J_f^\pi$	Mult.	$E_\gamma$	$E_i(\text{level})$	$J_i^\pi$	$E_f$	$J_f^\pi$	Mult.
88	220	(9/2) <sup>+</sup>	132	(5/2) <sup>+</sup>	[E2]	859	2756	(19/2 <sup>-</sup> )	1897	(15/2 <sup>-</sup> )	
119	119	(5/2 <sup>-</sup> )	0	3/2 <sup>-</sup>		918	3274	(21/2 <sup>-</sup> )	2355	(17/2 <sup>-</sup> )	[E2]
132	132	(5/2) <sup>+</sup>	0	3/2 <sup>-</sup>		1008	1791	(15/2 <sup>+</sup> )	783	(13/2 <sup>+</sup> )	
154	155	(3/2) <sup>+</sup>	0	3/2 <sup>-</sup>		1022	3777	(23/2 <sup>-</sup> )	2756	(19/2 <sup>-</sup> )	
220	374	(7/2 <sup>+</sup> )	155	(3/2) <sup>+</sup>		1045	2658	(21/2 <sup>+</sup> )	1613	(17/2 <sup>+</sup> )	[E2]
241	374	(7/2 <sup>+</sup> )	132	(5/2) <sup>+</sup>	[E2]	1072	2863	(19/2 <sup>+</sup> )	1791	(15/2 <sup>+</sup> )	[E2]
255	773	(9/2 <sup>-</sup> )	518	(7/2 <sup>-</sup> )		1075	4349	(25/2 <sup>-</sup> )	3274	(21/2 <sup>-</sup> )	[E2]
366	1516	(13/2 <sup>-</sup> )	1150	(11/2 <sup>-</sup> )		1190	4968	(27/2 <sup>-</sup> )	3777	(23/2 <sup>-</sup> )	
376	1150	(11/2 <sup>-</sup> )	773	(9/2 <sup>-</sup> )		1209	3868	(25/2 <sup>+</sup> )	2658	(21/2 <sup>+</sup> )	[E2]
398	518	(7/2 <sup>-</sup> )	119	(5/2 <sup>-</sup> )		1253	5602	(29/2 <sup>-</sup> )	4349	(25/2 <sup>-</sup> )	[E2]
458	2355	(17/2 <sup>-</sup> )	1897	(15/2 <sup>-</sup> )		1266	6234	(31/2 <sup>-</sup> )	4968	(27/2 <sup>-</sup> )	
518	518	(7/2 <sup>-</sup> )	0	3/2 <sup>-</sup>		1273	4136	(23/2 <sup>+</sup> )	2863	(19/2 <sup>+</sup> )	
518	3274	(21/2 <sup>-</sup> )	2756	(19/2 <sup>-</sup> )		1320	5188	(29/2 <sup>+</sup> )	3868	(25/2 <sup>+</sup> )	[E2]
563	783	(13/2 <sup>+</sup> )	220	(9/2) <sup>+</sup>	[E2]	1327	5524	(29/2 <sup>+</sup> )	4198	(25/2 <sup>+</sup> )	
566	940	(11/2 <sup>+</sup> )	374	(7/2) <sup>+</sup>	[E2]	1335	6937	(33/2 <sup>-</sup> )	5602	(29/2 <sup>-</sup> )	[E2]
572	4349	(25/2 <sup>-</sup> )	3777	(23/2 <sup>-</sup> )		1394	8331	(37/2 <sup>-</sup> )	6937	(33/2 <sup>-</sup> )	[E2]
632	1150	(11/2 <sup>-</sup> )	518	(7/2 <sup>-</sup> )		1436	6624	(33/2 <sup>+</sup> )	5188	(29/2 <sup>+</sup> )	[E2]
634	5602	(29/2 <sup>-</sup> )	4968	(27/2 <sup>-</sup> )		1540	4198	(25/2 <sup>+</sup> )	2658	(21/2 <sup>+</sup> )	[E2]
654	773	(9/2 <sup>-</sup> )	119	(5/2 <sup>-</sup> )	[E2]	1550	9881	(41/2 <sup>-</sup> )	8331	(37/2 <sup>-</sup> )	[E2]
719	940	(11/2 <sup>+</sup> )	220	(9/2) <sup>+</sup>		1646	8270	(37/2 <sup>+</sup> )	6624	(33/2 <sup>+</sup> )	[E2]
743	1516	(13/2 <sup>-</sup> )	773	(9/2 <sup>-</sup> )	[E2]	1656	5524	(29/2 <sup>+</sup> )	3868	(25/2 <sup>+</sup> )	
747	1897	(15/2 <sup>-</sup> )	1150	(11/2 <sup>-</sup> )		1768	11649	(45/2 <sup>-</sup> )	9881	(41/2 <sup>-</sup> )	[E2]
830	1613	(17/2 <sup>+</sup> )	783	(13/2 <sup>+</sup> )	[E2]	1876	10146	(41/2 <sup>+</sup> )	8270	(37/2 <sup>+</sup> )	[E2]
840	2355	(17/2 <sup>-</sup> )	1516	(13/2 <sup>-</sup> )	[E2]	1954	12100	(45/2 <sup>+</sup> )	10146	(41/2 <sup>+</sup> )	
851	1791	(15/2 <sup>+</sup> )	940	(11/2 <sup>+</sup> )	[E2]						

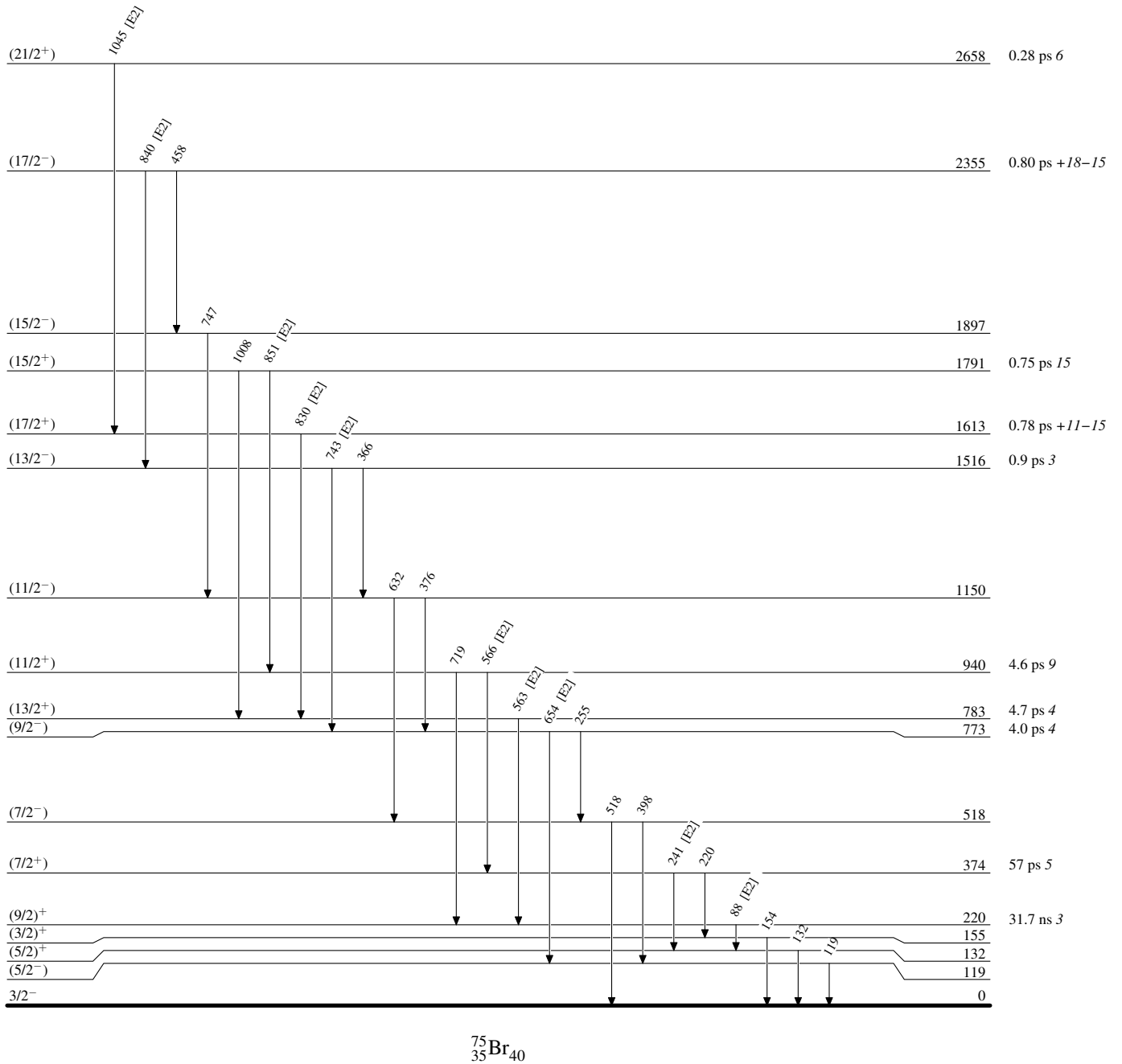
$^{51}\text{V}(^{28}\text{Si}, 2\text{p}2\text{n})$  2009Mu16

## Level Scheme

 $^{75}_{35}\text{Br}_{40}$

$^{51}\text{V}(^{28}\text{Si}, 2\text{p}2\text{n}\gamma)$  2009Mu16

## Level Scheme (continued)



$^{51}\text{V}(^{28}\text{Si}, 2\text{p}2\text{n}\gamma)$  2009Mu16