^{40}Ca(^{32}S,αpγ) 2001Je10

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Huo Junde, Huang Xiaolong, J. K. Tuli	NDS 106, 159 (2005)	1-Apr-2005

Includes ^{40}Ca(^{36}Ar,2αpγ), ^{40}Ca(^{33}S,αpnγ).

2001Je10: E(^{32}S)=100 MeV, E(^{36}Ar)=145 MeV. Measured Eγ, Iγ, $\gamma\gamma$,$\gamma\gamma(\theta)$(DCO) using Gammasphere array with 80 HPGe detectors, an array of 30 neutron detectors and Microball array with 95 CsI detectors for charged-particle detection.

1990La14: Bombarding particle energy between 95 and 110 MeV. Measured $\gamma(\theta)$,$\gamma\gamma$ coincidences, and $\gamma\gamma(\theta)$, charged particle-$\gamma\gamma$ and neutron-$\gamma\gamma$ coincidences and γ excitation functions.

All data are from 2001Je10.

^{67}As Levels

E(level)†	Jπ	$T_{1/2}$	E(level)†	Jπ	E(level)†	Jπ
0	5/2$^-$		2282.20# *19*	(11/2$^+$)	4524.16# *18*	(19/2$^+$)
68.32 *9*	3/2$^-$		2364.99‡ *14*	13/2$^+$	4950.97‡ *18*	21/2$^+$
697.11 *9*	7/2$^-$		3180.28# *17*	(13/2$^+$)	5724.87‡ *21*	25/2$^+$
1103.34 *10*	7/2$^-$		3593.46‡ *17*	17/2$^+$	6709.2‡ *3*	29/2$^+$
1422.43‡ *10*	9/2$^+$	12 ns *2*	3885.52# *19*	(15/2$^+$)	7790.2‡ *6*	(33/2$^+$)

† From least-squares fit to Eγ's, assuming minimum uncertainty of 0.2 keV (by evaluator). Quoted uncertainty of 0.1 keV (in 2001Je10) gives a poor least-squares adjustment with six Eγ's (out of a total of 21 γ rays) deviating by more than 3 σ's.

‡ Band(A): Band based on 9/2$^+$.

Band(B): γ sequence based on (11/2$^+$).

γ(^{67}As)

E_γ	I_γ	E_i(level)	J_i^π	E_f	J_f^π	Mult.	Comments
68.3 *1*	26.1 *15*	68.32	3/2$^-$	0	5/2$^-$	(M1)	
319.0 *1*	36.8 *25*	1422.43	9/2$^+$	1103.34	7/2$^-$		DCO=0.49 7.
426.4 *1*	13.2 *10*	4950.97	21/2$^+$	4524.16	(19/2$^+$)		
638.3 *1*	25.6 *19*	4524.16	(19/2$^+$)	3885.52	(15/2$^+$)		DCO=0.95 11.
697.2 *1*	67.8 *21*	697.11	7/2$^-$	0	5/2$^-$		DCO=0.65 7.
704.0 *2*	18.5 *18*	3885.52	(15/2$^+$)	3180.28	(13/2$^+$)		
725.4 *1*	72.5 *25*	1422.43	9/2$^+$	697.11	7/2$^-$		DCO=0.54 6.
773.9 *1*	72 *3*	5724.87	25/2$^+$	4950.97	21/2$^+$		DCO=0.87 10.
814.9 *1*	7.8 *6*	3180.28	(13/2$^+$)	2364.99	13/2$^+$		E_γ: poor fit. Level-energy difference=815.55.
860.0 *2*	22.5 *14*	2282.20	(11/2$^+$)	1422.43	9/2$^+$		
898.7 *3*	26.0 *14*	3180.28	(13/2$^+$)	2282.20	(11/2$^+$)		
930.4 *2*	11.7 *10*	4524.16	(19/2$^+$)	3593.46	17/2$^+$		
942.5 *1*	100	2364.99	13/2$^+$	1422.43	9/2$^+$		DCO=0.96 11.
984.3 *2*	44.4 *25*	6709.2	29/2$^+$	5724.87	25/2$^+$		DCO=0.86 10.
1035.0 *1*	27.3 *25*	1103.34	7/2$^-$	68.32	3/2$^-$		DCO=0.90 15.
1081.0 *5*	11.8 *15*	7790.2	(33/2$^+$)	6709.2	29/2$^+$		
1102.7 *3*	5.0 *4*	1103.34	7/2$^-$	0	5/2$^-$		
1228.8 *1*	71 *3*	3593.46	17/2$^+$	2364.99	13/2$^+$		DCO=0.83 12.
1357.9 *1*	50.2 *19*	4950.97	21/2$^+$	3593.46	17/2$^+$		DCO=0.87 11.
1422.4 *3*	13.2 *15*	1422.43	9/2$^+$	0	5/2$^-$		
1520.1 *5*	15.7 *18*	3885.52	(15/2$^+$)	2364.99	13/2$^+$		E_γ,I_γ: from 1990La14, Iγ is based on Iγ(G704)/Iγ(G1520)=20/17.
1603.2 *3*	17.4 *12*	3885.52	(15/2$^+$)	2282.20	(11/2$^+$)		

$^{40}Ca(^{32}S,\alpha p\gamma)$ **2001Je10**

Level Scheme

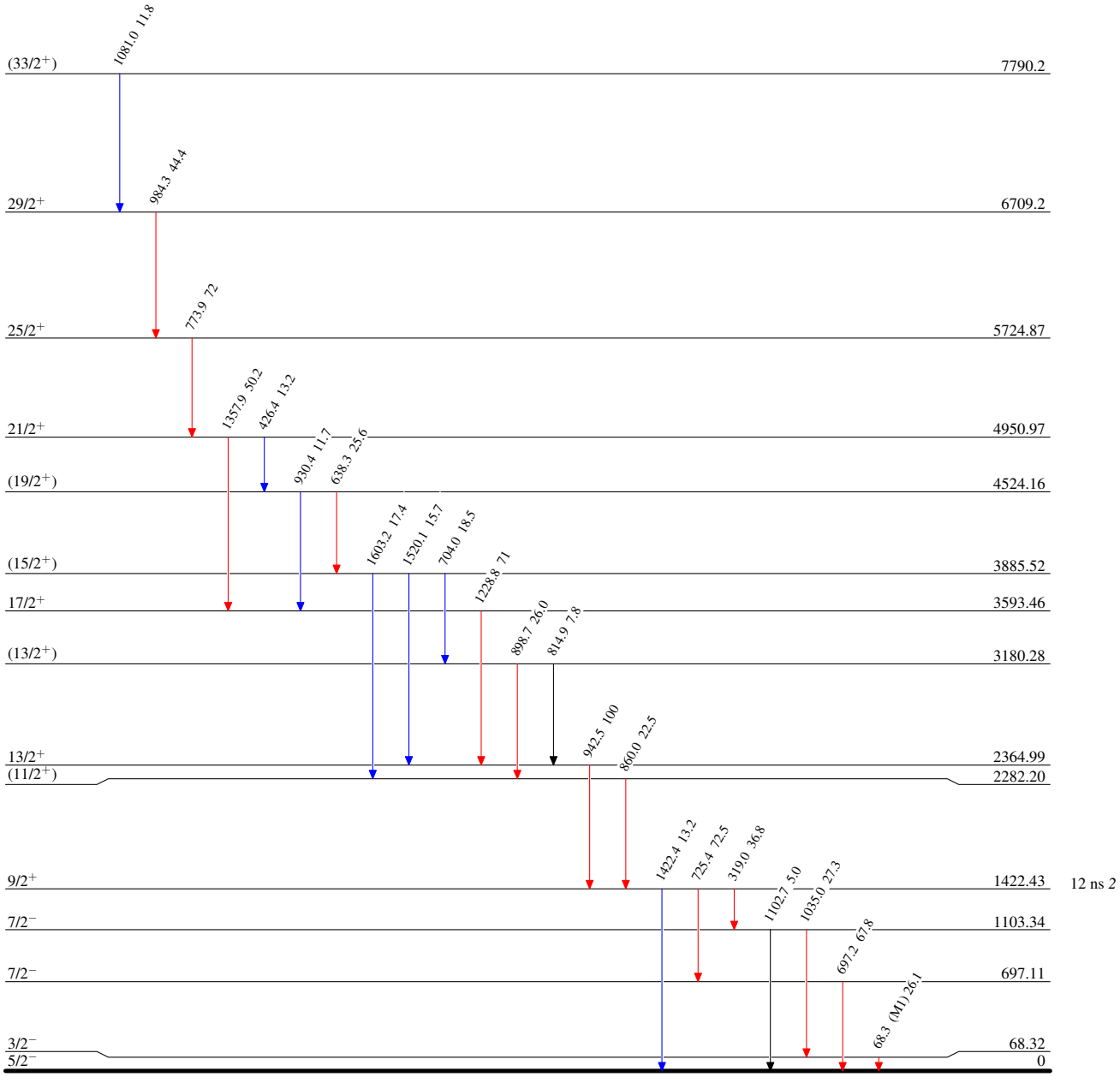
Intensities: Relative I_γ

Legend

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

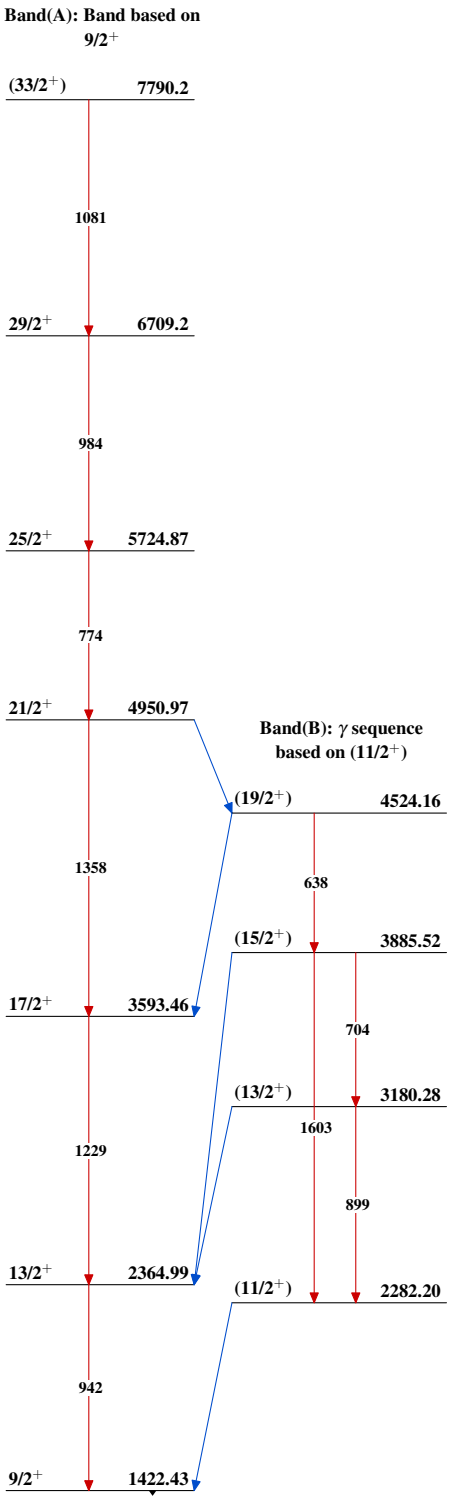
$I_\gamma < 10\% \times I_\gamma^{max}$

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



$^{67}_{33}As_{34}$

$^{40}Ca(^{32}S,\alpha p\gamma)$ 2001Je10



$^{67}_{33}As_{34}$