^{24}Mg(^{16}O,αnγ) 2007De14,2005DeZZ

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Jun Chen, John Cameron and Balraj Singh	NDS 112,2715 (2011)	20-Oct-2011

2007De14,2005DeZZ: E=70 MeV ^{16}O beam produced from the XTU-Tandem accelerator at Legnaro National Laboratory. Target: a 400 μg/cm^2 self-supporting target of ^{24}Mg. Detectors: the GASP spectrometer of 40 Compton-suppressed HPGe detectors and a multiplicity filter of 80 BGO scintillators, in conjunction with the 4π charged-particle detector ISIS and a neutron ring of 6 BC501A scintillators. Measured Eγ, Iγ, $\gamma\gamma$, $\gamma(\theta)$, γp-coin. Deduced high-spin levels, J^π from the ADO ratios.

^{35}Ar Levels

E(level)†	J$^\pi$‡	E(level)†	J$^\pi$‡	E(level)†	J$^\pi$‡	E(level)†	J$^\pi$‡
0.0	3/2$^+$	3196.7# *7*	7/2$^-$	5613.2 *11*	(11/2$^-$)	8212.1 *10*	15/2$^-$
1750.8 *5*	5/2$^+$	4358.6 *8*	9/2$^-$	5765.3 *8*	13/2$^-$	9905.5# *21*	19/2$^-$
2603.0 *7*	7/2$^+$	5383.7# *8*	11/2$^-$	8109.2# *14*	15/2$^-$	12276.4# *33*	23/2$^-$

† From least-squares fit to Eγ's.
‡ From the transition multipolarities deduced from measured ADO ratios in 2007De14.
# Band(A): Band based on f$_{7/2}$ orbital.

γ(^{35}Ar)

R_{ADO}=[Iγ(34°)+Iγ(146°)]/2Iγ(90°). Expected values for this geometry are: ≈1.3 for ΔJ=2, quadrupole and ≈0.8 for ΔJ=1, dipole transitions.

E$_\gamma$	I$_\gamma$	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$	Comments
381.5 *3*	29 *3*	5765.3	13/2$^-$	5383.7	11/2$^-$	R_{ADO}=0.81 *10*.
593.7 *2*	11 *2*	3196.7	7/2$^-$	2603.0	7/2$^+$	
851.8 *9*	8 *2*	2603.0	7/2$^+$	1750.8	5/2$^+$	
1025.2 *4*	6 *2*	5383.7	11/2$^-$	4358.6	9/2$^-$	
1162.0 *8*	15 *3*	4358.6	9/2$^-$	3196.7	7/2$^-$	R_{ADO}=0.95 *25*.
1254.6 *8*	15 *5*	5613.2	(11/2$^-$)	4358.6	9/2$^-$	
1406.9 *7*	5 *1*	5765.3	13/2$^-$	4358.6	9/2$^-$	R_{ADO}=1.3 *7*.
1446.1 *6*	67 *5*	3196.7	7/2$^-$	1750.8	5/2$^+$	R_{ADO}=0.87 *19*.
1693.3 *27*	15 *3*	9905.5	19/2$^-$	8212.1	15/2$^-$	R_{ADO}=1.41 *23*.
1750.8 *5*	100 *9*	1750.8	5/2$^+$	0.0	3/2$^+$	R_{ADO}=1.46 *24*.
1756.3 *14*	17 *9*	4358.6	9/2$^-$	2603.0	7/2$^+$	
1796.3 *25*	10 *3*	9905.5	19/2$^-$	8109.2	15/2$^-$	R_{ADO}=1.8 *3*.
2186.8 *4*	49 *3*	5383.7	11/2$^-$	3196.7	7/2$^-$	R_{ADO}=1.31 *15*.
2342.6 *28*	8 *2*	8109.2	15/2$^-$	5765.3	13/2$^-$	
2370.9 *25*	15 *5*	12276.4	23/2$^-$	9905.5	19/2$^-$	R_{ADO}=1.8 *4*.
2446.6 *16*	6 *2*	8212.1	15/2$^-$	5765.3	13/2$^-$	
2602.6 *15*	60 *6*	2603.0	7/2$^+$	0.0	3/2$^+$	R_{ADO}=1.37 *20*.
2725.7 *14*	4 *1*	8109.2	15/2$^-$	5383.7	11/2$^-$	
2828.3 *7*	28 *5*	8212.1	15/2$^-$	5383.7	11/2$^-$	R_{ADO}=1.7 *6*.
3197 *6*	16 *3*	3196.7	7/2$^-$	0.0	3/2$^+$	R_{ADO}=1.7 *8*.

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Level Scheme

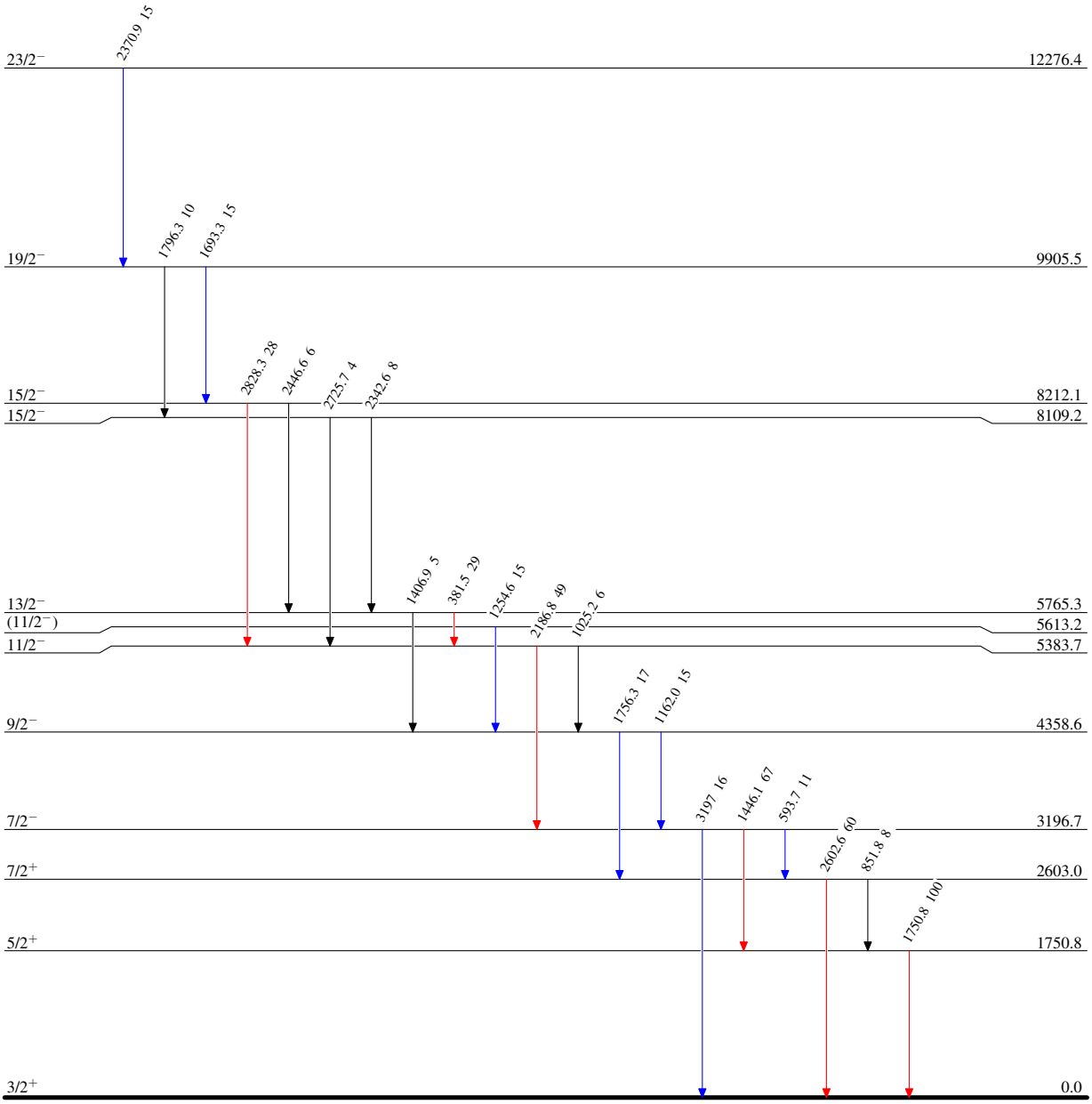
Intensities: Relative I_γ

Legend

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

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

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



$^{35}_{18}Ar_{17}$

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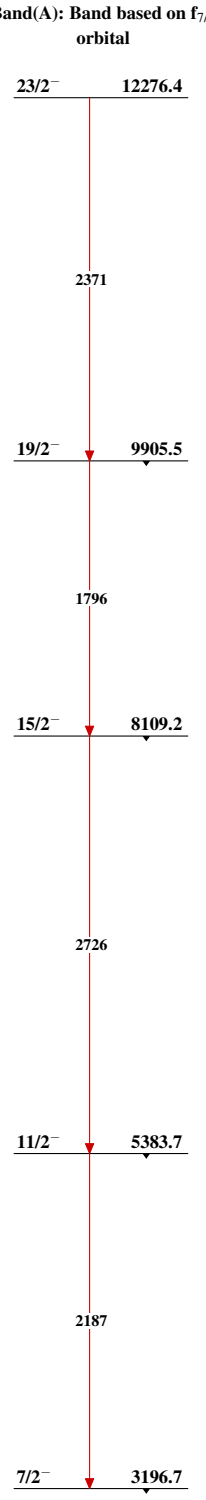

$^{35}_{18}Ar_{17}$