(HI,xnγ)   1978Eg01,1975Ol01,1974Li07

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	C. D. Nesaraja, E. A. Mccutchan	NDS 133, 1 (2016)	30-Sep-2015

Main References:

1978Eg01: ^{26}Mg(^{18}O,3nγ), E(^{18}O)=34 MeV Utrecht EN tandem accelerator. Detected gammas with Ge(Li) detectors, compton separation spectrometer and Ge(Li) compton polarimeter. Measured Eγ, Iγ, γ(θ), γ(lin pol).

1975Ol01 (also 1973Go31): ^{26}Mg(^{18}O,3nγ), E(^{18}O)=40 MeV (also 36 MeV) from Brookhaven National Laboratory. Detected gammas with Ge(Li) detectors and polarimeter. Measured Eγ, Iγ, γ(θ), γ(lin pol).

1974Li07: ^{27}Al(^{16}O,pnγ), E(^{16}O)=32.5-44 MeV. Detected gammas with Ge(Li) detectors. Measured Eγ, lifetimes by Doppler-shift attenuation method.

Others:

2011Ch54: ^{27}Al(^{16}O,Xγ). E(^{16}O)= 34 MeV. Measured Eγ, γγ(θ), γγ(lin pol) and anistostropy ratio (see 2011ChZU).

2008Sa04 (also 2008Sa44): ^{24}Mg(^{24}Mg,α2pnγ). E(^{24}Mg)=45.7 MeV. Seven γ rays from the decay of a J^π=36$^+$ resonance into the fusion-evaporation channels were measured.

1992Pa01: ^{12}C(^{32}S,2pnγ), E(^{32}S)=115 MeV. g-factor of 3830 level used as a reference in the measurement of g-factor of 19/2$^-$ state in ^{39}K. Three γ-rays reported at 460, 3200 and 3369.

1978Cl09: ^{27}Al(^{16}O,pnγ), E(^{16}O)=34 MeV. Measured Eγ, lifetime by recoil-distance method.

1976Ra05: ^{27}Al(^{16}O,pnγ), E(^{16}O)=32.5 MeV. Measured Eγ, γ(θ,t) and deduced lifetime and hyperfine perturbations.

1976Ke02: ^{27}Al(^{16}O,pnγ), E(^{16}O)=30 MeV. Measured Eγ, lifetimes by recoil-distance Doppler-shift attenuation method.

1976Me09: ^{27}Al(^{16}O,pnγ), E(^{16}O)=34 MeV. Measured Eγ, lifetimes by recoil-distance Doppler-shift method.

1975Ki05: ^{28}Si(^{16}O,2pnγ) E(^{16}O)=40 MeV. Measured lifetime for 3830 level by γ(θ).

1975Uh02: ^{27}Al(^{16}O,pnγ), E(^{16}O)=32.5 MeV. Measured g-factor of 3830 level by IMPAC (time Dependent Perturbed Angular Distribution) method.

1975Yo05: ^{27}Al(^{16}O,pnγ), E(^{16}O)=48 MeV. Measured g-factor of 3830 level by TDPAD (Perturbed Angular Correlation after Ion Implantation) method.

1975Bo44: ^{27}Al(^{16}O,pnγ), E(^{16}O)=30-35 MeV. Measured g-factor of 3830 level by IMPAD (Perturbed Angular Correlation after Ion Implantation) method.

1973Go31: ^{26}Mg(^{18}O,3nγ), E(^{18}O)=20-60 MeV. Measured Eγ, γγ, γ(θ), lifetimes by recoil-distance method.

^{41}Ca Levels

E(level)[†]	J^{π}[‡]	$T_{1/2}$	Comments
0	7/2$^-$		
2009.8	3/2$^+$	0.46 ns 5	$T_{1/2}$: From 1976Ke02.
3201.26 14	9/2$^+$	19 fs 17	$T_{1/2}$: From 1973Go31.
3369.63 13	11/2$^+$	20.6 ps 10	$T_{1/2}$: Weighted average of 21.1 ps 10 (1978Cl09), 17.3 ps 28 (1976Me09), 19.4 ps 35 (1974Li07), 20.5 ps 14 (1973Go31).
3829.84 15	15/2$^+$	3.00 ns 10	g=+0.29 2
			g: From (1975Yo05). Other: +0.32 4 (1975Uh02).
			$T_{1/2}$: Weighted average of 3.19 ns 21 (1976Ra05), 2.98 ns 35 (1976Me09), 2.88 ns 14 (1975Ki05), 3.05 ns 21 (1974Li07), 3.12 ns 35 (1973Go31).
3915.04 20	13/2$^+$	1.9 ps 4	$T_{1/2}$: Weighted average of 2.08 ps 69 (1976Me09), 1.80 ps 55 (1974Li07).
5219.06 25	(13/2,17/2)$^+$	<0.35 ps	$T_{1/2}$: From 1974Li07. Other: < 1.4 ps (,1976Me09,1973Go31).
6826.3 5		<1.7 ps	$T_{1/2}$: From 1976Me09. Other: >0.14 ps (1973Go3107).

† From least-squares fit to Eγ's.

‡ From Adopted Levels.

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γ(^{41}Ca)

E_i(level)	J^{π}_i	E_{γ}[†]	I_{γ}[@]	E_f	J^{π}_f	Mult.[&]	Comments
3201.26	9/2$^+$	3201.11 *20*		0	7/2$^-$	E1	A$_2$=−0.21 *2*, A$_4$=0, (1978Eg01). A$_2$=−0.33 *3*, POL=+0.66 *25*(19775Ol01). POL=+0.029 *8* (2011Ch54).
3369.63	11/2$^+$	168.34[‡] *10*	60 *3*	3201.26	9/2$^+$	M1	A$_2$=−0.216 *16*, A$_4$=0 (1978Eg01). Mult.: Other: M1+E2 from 1975Ol01.
		3369.50 *15*	40 *3*	0	7/2$^-$	M2+E3	A$_2$=+0.77 *2*, A$_4$= +0.25 *2* (1978Eg01). A$_2$=+0.67 *4*, A$_4$= +0.22 *4*, POL=+0.6 *10* (19775Ol01).
3829.84	15/2$^+$	460.20 *10*		3369.63	11/2$^+$	E2	A$_2$=+0.345 *7*, A$_4$=−0.107 *8*, POL=+0.67 *7* (1978Eg01). A$_2$=+0.26 *3*, A$_4$=−0.11 *3*, POL=+0.42 *7* (1975Ol01). POL=+0.147 *8* (2011Ch54).
3915.04	13/2$^+$	545.40 *15*		3369.63	11/2$^+$	(M1)	A$_2$=+0.36 *7*, A$_4$=0, POL=−0.11 *7* (1975Ol01). POL=−0.065 *15* (2011Ch54). Mult.: Other: M1+E2 from 1975Ol01.
5219.06	(13/2,17/2)$^+$	1389.21 *25*		3829.84	15/2$^+$	(M1)	A$_2$=−0.11 *9*, A$_4$=0, POL=−0.30 *20* (1978Eg01). A$_2$=−0.21 *14*, A$_4$=0, POL=−0.25 *28* (1975Ol011). Mult.: Other: M1+E2 from 1975Ol01.
6826.3		1607.24[#] *40*		5219.06	(13/2,17/2)$^+$	E1	A$_2$=−0.31 *10* , A$_4$=+0.04 *9*, POL=−0.37 *14* (1975Ol01). Mult.: From $\gamma(\theta)$ and γ(lin pol) in 1975Ol01.

[†] Weighted averages from 1978Eg01 and 1975Ol01 unless otherwise stated.
[‡] From 1978Eg01.
[#] From 1975Ol01.
[@] Weighted average of branching ratios in 1973Go31 and 1978Eg01.
[&] From $\gamma(\theta)$ and γ(lin pol) in 1978Eg01 except as noted.

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Level Scheme

Intensities: % photon branching from each level

$_{20}^{41}\text{Ca}_{21}$