^{40}Ca(n,γ) 1971Ch56

History

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

1971Ch56: E(n)=10, 19, 39, 51, 60, 75, 88 keV. Measured primary gammas with Ge(Li) and NaI detectors.
Others:
20015Bo03: Cold neutrons. Preliminary results: S(n) and E(γ).
1992La20: E(n)= 8-44 MeV. Measured $\sigma(\theta)$, γ-asymmetry. Deduced isovector GQR.
1985Wa12: E(n)= 10 MeV. Measured response function for 18 MeV γ.
1984We11: E(n)≈ 2-20 MeV. Measured absolute $\sigma(\theta)$.
1984Be25: E(n)= 7-28 MeV. Measured $\sigma(\theta)$, deduced parameters for isovector GQR.
1983FiZQ: (pol n,γ), excitation energies in giant resonance region. Measured $\sigma(\theta)$, Ay(θ). Deduced isoscalar E2 resonance.
1980Is02: (n,γ). Measured Eγ, Iγ. Deduced Q value.
1979Je03: (pol n,γ), E(pol n)= 10 MeV. Measured $\sigma(\theta)$, Ay(θ). Deduced E2 contribution in GDR region.
1978We02 (also 1978We11): E(n)= 8.0, 12.0 MeV. Measured $\sigma(\theta)$.
1975Ar19: E(n)= 14 MeV. Measured yields, $\gamma(\theta)$.
1974Be55: E(n)= 6.8-18.2 MeV. Measured cross sections, Eγ.
1956Br42: E(n)= 0.3-3 MeV. Measured Eγ, Iγ.

^{41}Ca Levels

ARC=Average Resonance Capture.

E(level)†	Comments
0	Primary Iγ=1 from ARC.
1943	Primary Iγ=12 from ARC.
2010	Primary Iγ<5 from ARC.
2462	Primary Iγ=16 from ARC.
2575	
2605	
2670	Primary Iγ=5 from ARC.
2959	Primary Iγ=3 from ARC.
3050	Primary Iγ=2 from ARC.
3400	Primary Iγ=3 from ARC.
3495	Primary Iγ=4 from ARC.
3614	Primary Iγ=1 from ARC.
3730	Primary Iγ=5 from ARC.
3845	Primary Iγ=4 from ARC.
3944	Primary Iγ=5 from ARC.
4184	Primary Iγ=3 from ARC.
4603	Primary Iγ=9 from ARC.
4753	Primary Iγ=5 from ARC.
5012	Primary Iγ=4 from ARC.
5078	Primary Iγ=2 from ARC.
8373	E(level): E(n)(lab)=10 keV.
8381	E(level): E(n)(lab)=19 keV.
8401	E(level): E(n)(lab)=39 keV.
8413	E(level): E(n)(lab)=51 keV.
8421	E(level): E(n)(lab)=60 keV.
8436	E(level): E(n)(lab)=75 keV.
8449	E(level): E(n)(lab)=88 keV.

† From Adopted Levels for levels up to 5.1 MeV rounded to the nearest keV. Capture states are S(n)+E(n)(c.m.), where S(n)= 8362.82 *14* (2012Wa38) with E(n)(lab) from 1971Ch56.

^{40}Ca(n,γ) 1971Ch56 (continued)

γ(^{41}Ca)

E_γ †	I_γ ‡	E_i(level)	E_f	E_γ †	I_γ ‡	E_i(level)	E_f	E_γ †	I_γ ‡	E_i(level)	E_f
4429	6 *2*	8373	3944	4918	11 *3*	8413	3495	5974	13	8436	2462
4437	2.0 *5*	8381	3944	4926	14 *3*	8421	3495	5987	8	8449	2462
4457	9 *2*	8401	3944	4954	10	8449	3495	6370	2.0 *5*	8381	2010
4477	11 *3*	8421	3944	4973	3.5 *10*	8373	3400	6390	1.0 *5*	8401	2010
4492	7	8436	3944	4981	1.5 *5*	8381	3400	6402	15 *3*	8413	2010
4527	7.5 *20*	8373	3845	5001	1.0 *3*	8401	3400	6425	9	8436	2010
4535	4.5 *10*	8381	3845	5323	9 *2*	8373	3050	6429	5 *1*	8373	1943
4555	5 *1*	8401	3845	5331	3 *1*	8381	3050	6437	22 *4*	8381	1943
4567	9 *3*	8413	3845	5351	2.0 *8*	8401	3050	6438	5	8449	2010
4642	7 *2*	8373	3730	5711	7 *2*	8381	2670	6457	15 *4*	8401	1943
4650	2.0 *5*	8381	3730	5731	1.0 *3*	8401	2670	6469	18 *4*	8413	1943
4670	1.0 *4*	8401	3730	5775	5.5 *20*	8381	2605	6477	32 *6*	8421	1943
4682	4 *2*	8413	3730	5779	7	8449	2670	6492	30	8436	1943
4718	5	8449	3730	5795	0.5 *2*	8401	2605	6505	22	8449	1943
4759	5.5 *20*	8373	3614	5805	6 *2*	8381	2575	8380	2.0 *5*	8381	0
4767	2.5 *10*	8381	3614	5825	2.5 *5*	8401	2575	8400	1.0 *5*	8401	0
4787	1.0 *4*	8401	3614	5911	30 *3*	8373	2462	8412	4.5 *20*	8413	0
4799	6 *2*	8413	3614	5919	10 *2*	8381	2462	8420	7.5 *20*	8421	0
4822	7	8436	3614	5939	31 *6*	8401	2462	8435	7	8436	0
4886	3 *1*	8381	3495	5951	5.5 *20*	8413	2462	8448	18	8449	0
4906	2.0 *5*	8401	3495	5959	9 *2*	8421	2462				

† From level-energy differences. Recoil energies have been substracted by evaluators.
‡ Relative Intesities for each resonance normalized so that ΣIγ=ΣIγ in the thermal neutron capture (1997Gr18).

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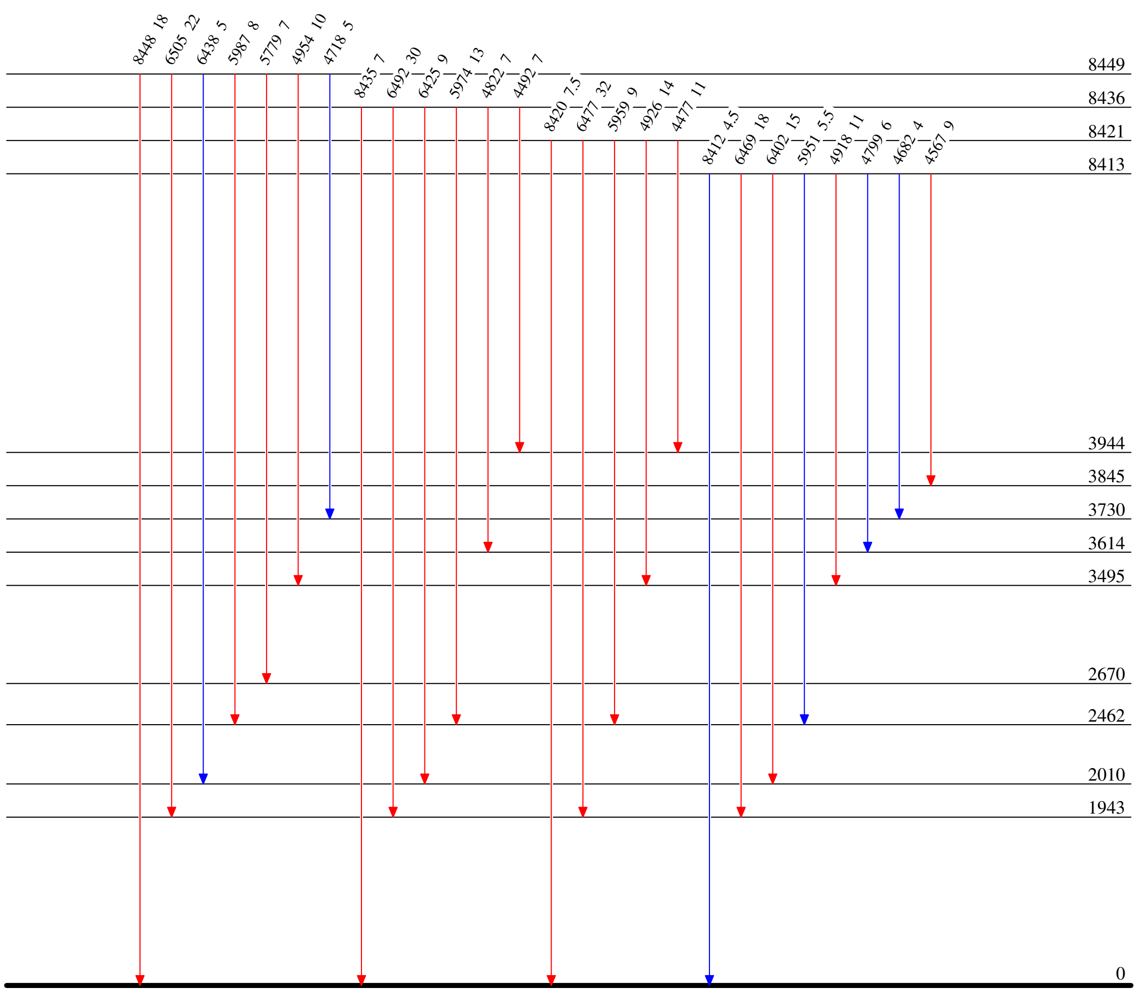
Legend

Level Scheme

Intensities: Relative Intensities for each resonance and normalized so that ΣIγ=ΣIγ in the thermal neutron capture (1997Gr18)ΣIγ=ΣIγ in the thermal neutron capture (1997Gr

- $I_\gamma < 2\% \times I_\gamma^{max}$
- $I_\gamma < 10\% \times I_\gamma^{max}$
- $I_\gamma > 10\% \times I_\gamma^{max}$



$^{41}_{20}Ca_{21}$

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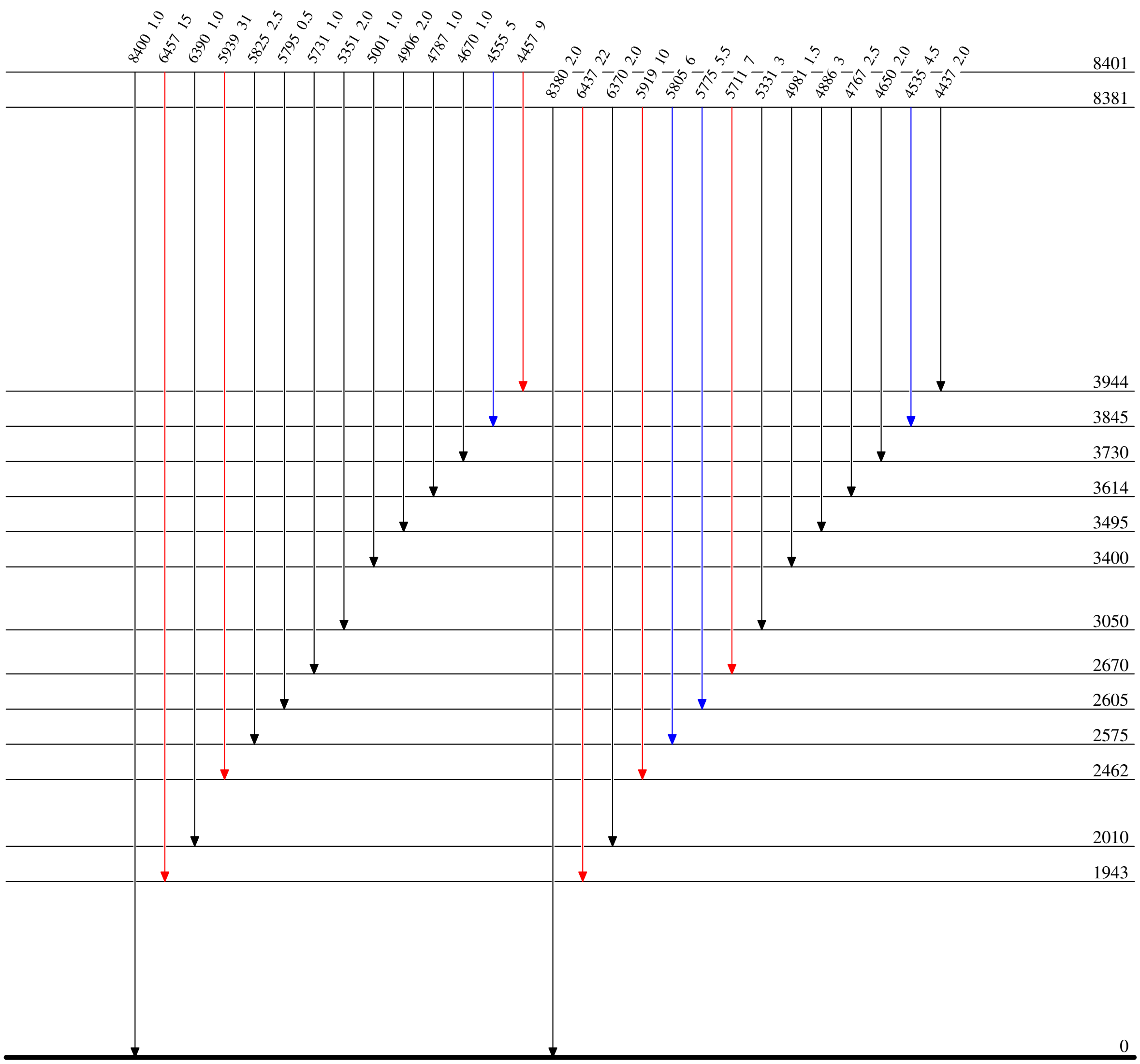
Legend

$I_\gamma < 2\% \times I_\gamma^{max}$
$I_\gamma < 10\% \times I_\gamma^{max}$
$I_\gamma > 10\% \times I_\gamma^{max}$

Level Scheme (continued)

Intensities: Relative Intensities for each resonance and normalized so that ΣIγ=ΣIγ in the thermal neutron capture (1997Gr18)ΣIγ=ΣIγ in the thermal neutron capture (1997Gr



$^{41}_{20}Ca_{21}$

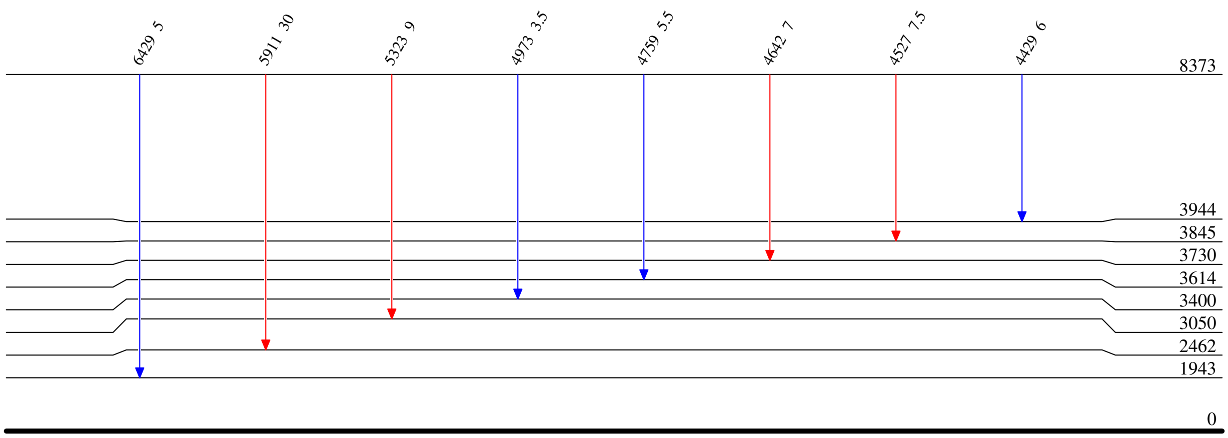
^{40}Ca(n,γ) 1971Ch56

Legend

- $I_\gamma < 2\% \times I_\gamma^{max}$
- $I_\gamma < 10\% \times I_\gamma^{max}$
- $I_\gamma > 10\% \times I_\gamma^{max}$

Level Scheme (continued)

Intensities: Relative Intensities for each resonance and normalized so that $\Sigma I\gamma = \Sigma I\gamma$ in the thermal neutron capture (1997Gr18)$\Sigma I\gamma = \Sigma I\gamma$ in the thermal neutron capture (1997Gr



$^{41}_{20}Ca_{21}$