^{22}Ne(n,γ) E=15-60 keV 2003To18

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	M. S. Basunia[#], A. Chakraborty[##]	NDS 171, 1 (2021)	1-Jun-2020

No significant change from previous evaluation (2007Fi02).

Measurement was carried out at the Research Laboratory for Nuclear Reactors at the Tokyo Institute of Technology. Pulsed neutron beam, the prompt gamma rays were detected using a pair of anti-Compton NaI(Tl) spectrometers. The measurements were carried out cyclically on natural or enriched Ne, empty cell, Au and blank samples. The de-exciting gamma rays were measured for E(n)=15-40 keV and 41-60 keV. Evidences were found for the importance of p-wave neutron capture process along with the contribution from s-wave neutron capture process.

^{23}Ne Levels

E(level)	J$^\pi$[†]	Comments
0.0	5/2$^+$	
1017	1/2$^+$	
1823	3/2$^+$	
3221	3/2$^-$	
3836	1/2$^-$	
(5201)		E(level): Sn+15-60 keV. Numerical Sn value given for γ-ray placement.

[†] From Adopted Levels.

γ(^{23}Ne)

E$_\gamma$[†]	I$_\gamma$	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$	E$_\gamma$[†]	I$_\gamma$	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$
1017		1017	1/2$^+$	0.0	5/2$^+$	2819	40	3836	1/2$^-$	1017	1/2$^+$
1365	40	(5201)		3836	1/2$^-$	3221	33	3221	3/2$^-$	0.0	5/2$^+$
1823	70	1823	3/2$^+$	0.0	5/2$^+$	3378	24	(5201)		1823	3/2$^+$
1980	100[#‡]	(5201)		3221	3/2$^-$	4184	44	(5201)		1017	1/2$^+$
2013	30[#‡]	3836	1/2$^-$	1823	3/2$^+$	5201	20	(5201)		0.0	5/2$^+$
2204	>115	3221	3/2$^-$	1017	1/2$^+$						

[†] From level energy differences.

[‡] Unresolved intensity of 1980 and 2013 γ was divided using adopted branching.

[#] Intensities extracted from E=41-60 keV spectrum (see Fig. 2(b) of 2003To18) and corrected for efficiency assuming standard efficiency of 5x5 inch NaI(Tl) detector (extracted by the evaluator of 2007Fi02).

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Level Scheme

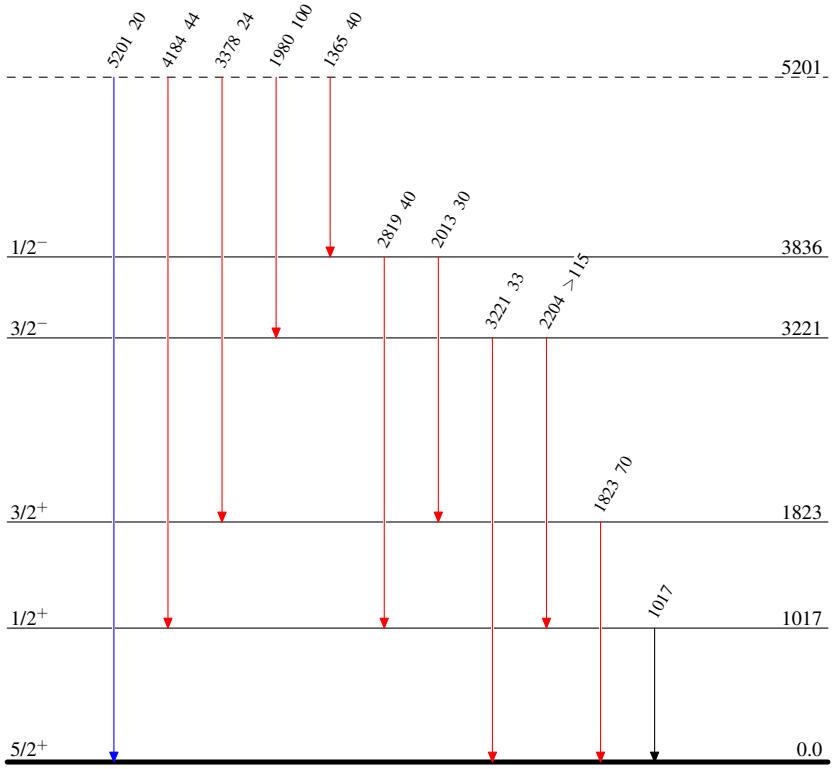
Intensities: Relative I_γ

Legend

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

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

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



$^{23}_{10}Ne_{13}$