^{191}Ir(n,γ) E=2, 24 keV 1991Ke10

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Coral M. Baglin	NDS 113, 1871 (2012)	15-Jun-2012

Target $J^{\pi}=3/2^{+}$.

1991Ke10: E(n)=2 keV, 24 keV (beam FWHM≈0.7 and 2 keV, respectively): measured Eγ, Iγ for average resonance capture primary transitions observed in two independent studies. "BNL" study: 3-crystal pair spectrometer (FWHM=6 keV at 5 MeV), Eγ calibration from thermal capture in chlorine, 98.2% ^{191}Ir target. "Kiev" study: pair spectrometer (Ge(Li) + NaI(Tl), FWHM=8 keV at≈7 MeV), 78.3%, 84.7%, 88.8% ^{191}Ir, 97.6% ^{193}Ir and natural Ir targets.

^{192}Ir Levels

In average resonance capture by a $3/2^{+}$ target, the strongest primary gammas (E1) can populate 0^{-}, 1^{-}, 2^{-} or 3^{-} levels; M1 primary transitions (expected to have≈23% the strength of the E1 transitions in this region (1991Ke10)) can populate π=+ levels with J<4.

E(level)†	E(level)†	E(level)†	E(level)†
56.7 *3*	228.2 *10*	331.3‡ *2*	515.8 *6*
83.0 *8*	236.6 *13*	367.3‡ *3*	529.5 *4*
105.7 *5*	241.1 *9*	390.2‡ *3*	543.3 *4*
116.2‡ *4*	266.0@ *3*	414.7# *3*	558.8 *4*
130.8 *7*	277.7 *10*	439.6 *3*	581.9 *3*
143.3 *3*	287.9# *4*	449.8 *3*	603.2 *4*
193.4‡ *3*	293.1 *6*	470.8 *3*	(6199.8)
202.8 *11*	310.2 *3*	488.8 *6*	
212.8# *3*	319.4 *4*	507.6 *3*	

† Authors′ preferred value, based on both 2-keV and 24-keV data.

‡ For unresolved doublet (1991Ke10).

The reduced intensity (viz., $I\gamma/E\gamma^5$) for the primary γ feeding this level is greater than expected for a γ feeding a single level; this suggests the existence of a multiplet at this energy.

@ Possibly for a doublet consisting of the 265.2 and 267.1 Adopted Levels.

γ(^{192}Ir)

E_γ†	$I\gamma/E\gamma^5$‡	E_i(level)	E_f	Comments
5596.6 *2*	0.49 *4*	(6199.8)	603.2	other Eγ: 5594.6 *6* (Kiev study).
5617.9 *2*	0.71 *6*	(6199.8)	581.9	other Eγ: 5614.8 *7* (Kiev study).
5641.0 *3*	0.22 *4*	(6199.8)	558.8	other Eγ: 5639.4 *7* (Kiev study).
5656.5 *3*	0.54 *6*	(6199.8)	543.3	
5670.3 *3*	0.57 *5*	(6199.8)	529.5	other Eγ: 5667.3 *6* (Kiev study).
5684.0 *4*	0.219 *22*	(6199.8)	515.8	other Eγ: 5682.0 *7* (Kiev study).
5692.2 *2*	0.46 *4*	(6199.8)	507.6	other Eγ: 5691.0 *6* (Kiev study).
5711.0 *5*	0.39 *7*	(6199.8)	488.8	other Eγ: 5708.1 *6* (Kiev study).
5728.9 *2*	0.33 *3*	(6199.8)	470.8	
5750.0 *2*	0.43 *3*	(6199.8)	449.8	
5760.1 *2*	0.44 *3*	(6199.8)	439.6	In the E(n)=2 keV Kiev study, this is a doublet (Eγ=5761.4 *11* and 5756.1 *15*).
5785.1 *1*	0.45 *9*	(6199.8)	414.7	
5809.6 *1*	0.45 *3*	(6199.8)	390.2	
5832.5 *1*	0.53 *4*	(6199.8)	367.3	other Eγ: 5831.1 *6* (Kiev study).
5868.4 *1*	0.64 *5*	(6199.8)	331.3	
5880.3 *3*	0.233 *19*	(6199.8)	319.4	

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^{191}Ir(n,γ) E=2, 24 keV 1991Ke10 (continued)

γ(^{192}Ir) (continued)

E_γ[†]	$I\gamma/E\gamma^5$[‡]	E_i(level)	E_f	Comments
5889.6 *2*	0.286 *22*	(6199.8)	310.2	
5906.7 *4*	0.33 *5*	(6199.8)	293.1	
5911.9 *3*	0.65 *6*	(6199.8)	287.9	
5922.1 *8*	0.066 *19*	(6199.8)	277.7	
5933.8 *1*	0.286 *22*	(6199.8)	266.0	$I\gamma/E\gamma^5$: possibly for a doublet.
5958.6 *7*	0.49 *13*	(6199.8)	241.1	
5963.2 *10*	0.45 *11*	(6199.8)	236.6	
5971.6 *8*	0.31 *3*	(6199.8)	228.2	
5987.0 *2*	0.42 *3*	(6199.8)	212.8	$I\gamma/E\gamma^5$: possibly for a doublet.
5996.9 *9*	0.067 *18*	(6199.8)	202.8	
6006.4 *2*	0.41 *3*	(6199.8)	193.4	$I\gamma/E\gamma^5$: for doublet.
6056.5 *2*	0.296 *23*	(6199.8)	143.3	
6069.0 *5*	0.148 *21*	(6199.8)	130.8	other Eγ: 6071.1 *6* (Kiev study).
6083.6 *3*	0.41 *3*	(6199.8)	116.2	$I\gamma/E\gamma^5$: for doublet.
6094.1 *3*	0.265 *22*	(6199.8)	105.7	
6116.8 *6*	0.13 *3*	(6199.8)	83.0	other Eγ: 6113.6 *6* (Kiev study).
6143.1 *2*	0.296 *24*	(6199.8)	56.7	

[†] From E(n)=2 keV BNL study. except As noted, agreement with the data from the Kiev study is satisfactory.

[‡] Measured $I\gamma/E\gamma^5$ data from the BNL study at E(n)=2 keV. Expected values are 0.294, 0.172, 0.122, 0.068, respectively, for J^π=(1^- or 2^-), 3^-, 0^-, (1^+ or 2^+); significantly larger values may indicate the presence of a multiplet. see table 6 from 1991Ke10 for E(n)=24 keV data.

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Level Scheme

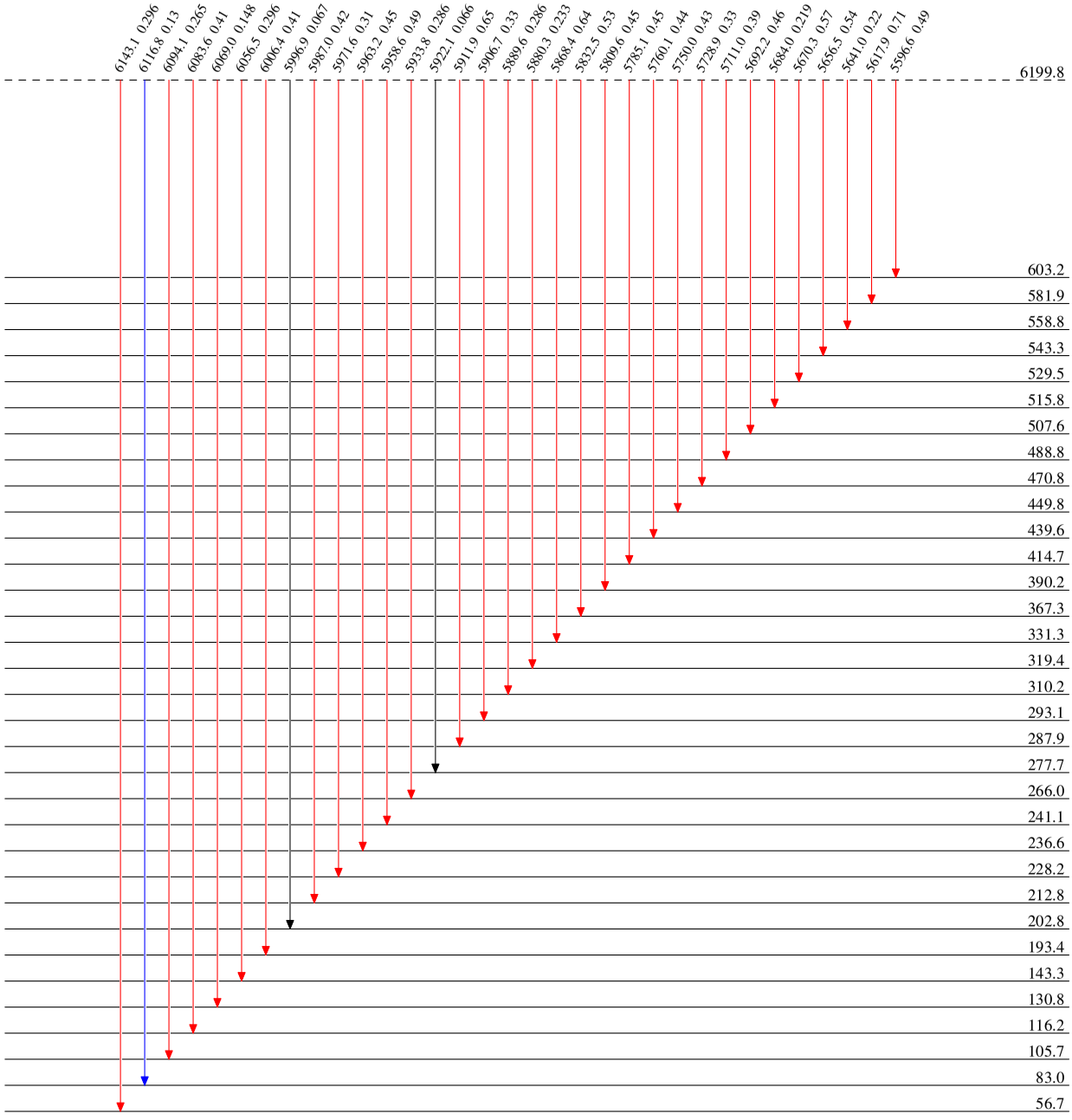
Intensities: Relative Iγ/Eγ^5 for E(n)=2 keV

Legend

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

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

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



$^{192}_{77}Ir_{115}$