^{235}U(n,Fγ) 2021Ny02

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh	ENSDF	30-Nov-2021

First study of excited states in ^{89}Br.

2021Ny02 (also 2016NyZZ): neutron beam was produced from ILL reactor at the PF1B cold-neutron facility of the Institut Laue-Langevin in Grenoble. Targets were 0.525 mg/cm^2 and 0.675 mg/cm^2 ^{235}U sandwiched between 15 μm Zr backings and between 25 μm Be backings, respectively. The γ rays were detected with the EXILL array of eight Compton-suppressed EXOGAM clover detectors, six Compton-suppressed GASP detectors, and two clovers of the ILL LOHENGRIN spectrometer. Measured Eγ, Iγ, $\gamma\gamma$-coin, $\gamma\gamma\gamma$-coin, $\gamma\gamma(\theta)$. Comparisons with shell-model calculations, and with experimental level structure of ^{87}Br, the latter investigated by 2021Ny01.

^{89}Br Levels

E(level)[†]	J$^\pi$[‡]	E(level)[†]	J$^\pi$[‡]	E(level)[†]	J$^\pi$[‡]	E(level)[†]	J$^\pi$[‡]
0.0	(5/2$^-$)	531.5 *3*	(5/2$^-$)	2136.6[#] *5*	(13/2$^+$)	4031.7[#] *7*	(21/2$^+$)
130.3 *3*	(3/2$^-$)	953.4 *3*	(7/2$^-$)	3035.2[#] *7*	(17/2$^+$)	4857.6 *9*	(23/2$^+$)
506.7 *3*	(7/2$^-$)	1545.9[#] *4*	(9/2$^+$)	3778.1 *7*	(19/2$^+$)		

[†] From 2021Ny02. Least-squares fit of Eγ data by evaluator gives the same values.

[‡] As given in 2021Ny02, based on comparison of experimental level scheme of ^{87}Br investigated by 2021Ny01, and shell model calculations in 2021Ny02.

[#] Band(A): $\pi g_{9/2}$ band.

$\gamma(^{89}$Br)

E$_\gamma$	I$_\gamma$[†]	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$	Comments
130.3 *3*	>46	130.3	(3/2$^-$)	0.0	(5/2$^-$)	
253.6 *6*	2 *1*	4031.7	(21/2$^+$)	3778.1	(19/2$^+$)	
401.2 *3*	>31	531.5	(5/2$^-$)	130.3	(3/2$^-$)	
422.0 *3*	40 *6*	953.4	(7/2$^-$)	531.5	(5/2$^-$)	
506.7 *3*	>100	506.7	(7/2$^-$)	0.0	(5/2$^-$)	
531.5 *3*	>9	531.5	(5/2$^-$)	0.0	(5/2$^-$)	Iγ(531.5γ)/Iγ(401.2γ)=29 *13*/100 *29* (2021Ny02).
590.7 *3*	100 *9*	2136.6	(13/2$^+$)	1545.9	(9/2$^+$)	
592.6 *8*	40 *9*	1545.9	(9/2$^+$)	953.4	(7/2$^-$)	
742.8 *4*	8 *2*	3778.1	(19/2$^+$)	3035.2	(17/2$^+$)	
823.1 *4*	14 *6*	953.4	(7/2$^-$)	130.3	(3/2$^-$)	
825.9 *5*	9 *3*	4857.6	(23/2$^+$)	4031.7	(21/2$^+$)	
898.6 *4*	43 *4*	3035.2	(17/2$^+$)	2136.6	(13/2$^+$)	
953.3 *5*	31 *6*	953.4	(7/2$^-$)	0.0	(5/2$^-$)	
996.5 *4*	13 *3*	4031.7	(21/2$^+$)	3035.2	(17/2$^+$)	
1039.2 *4*	100 *9*	1545.9	(9/2$^+$)	506.7	(7/2$^-$)	

[†] Relative to 100 for 1039.2-keV γ transition (2021Ny02).

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Level Scheme

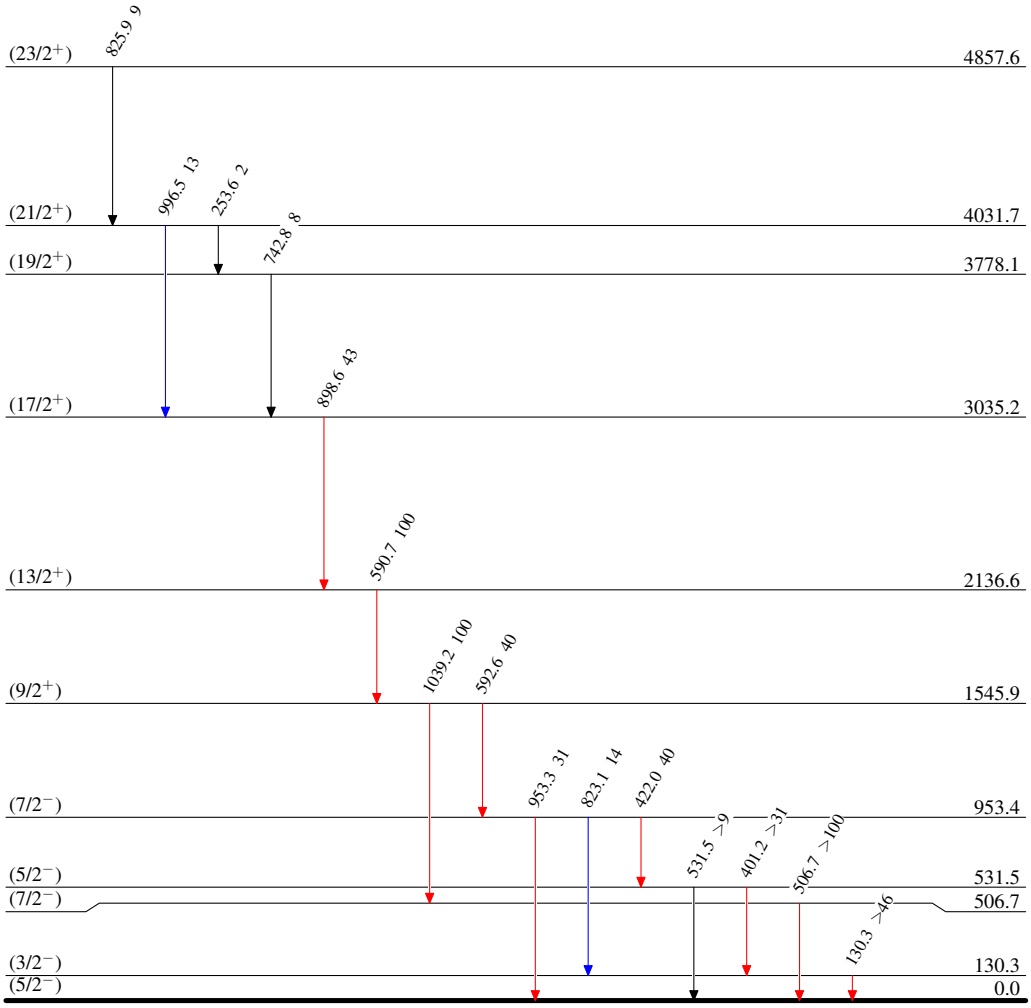
Intensities: Relative I_γ

Legend

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

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

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



$^{89}_{35}Br_{54}$

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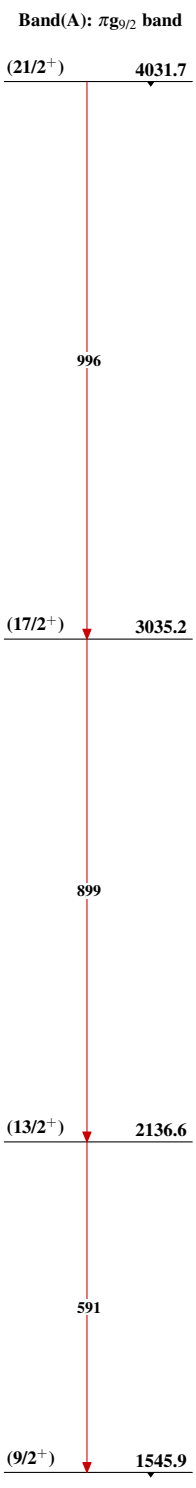

$^{89}_{35}Br_{54}$