^{138}Ba(n,γ),(n,n):resonances   2006MuZX

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	P. K. Joshi, B. Singh, S. Singh, A. K. Jain	NDS 138, 1 (2016)	15-Oct-2016

1997Be37: ^{139}Ba(n,γ) E<200 keV. Measured σ_γ and deduced resonance parameters (tof).

Other: 1988Mi19.

All data are from evaluation by 2006MuZX.

^{139}Ba Levels

E(level)[†]	J$^\pi$	L	g$\Gamma_n\Gamma_\gamma/\Gamma$ (meV)	Comments
4723.25?	1/2$^+$	0		E(level): fictitious level.
				E(n)(lab)=−0.1775 keV, Γ_γ=(55) meV.
4724.07	1/2$^-$,3/2$^-$	1	4.91 14	E(n)(lab)=0.648 keV, gΓ_n=0.0050 eV 2.
4725.36	[3/2]$^-$	1	37 1	E(n)(lab)=1.948 keV, gΓ_n=0.101 eV 8, Γ_γ=29 meV 10.
4725.42	1/2$^-$,3/2$^-$	1	0.8 1	E(n)(lab)=2 keV.
4728.10	[1/2]$^-$	1	31 1	E(n)(lab)=4.704 keV, gΓ_n=0.81 eV 6, Γ_γ=32 meV 3.
4731.25	1/2$^+$	0	66 2	E(n)(lab)=7.876 keV, gΓ_n=6.172 eV 53, Γ_γ=67 meV 5.
4733.28	[1/2]$^-$	1	35 2	E(n)(lab)=9.918 keV, gΓ_n=0.36 eV 4, Γ_γ=39 meV 2.
4737.34	[3/2]$^-$	1	59 3	E(n)(lab)=14.01 keV, gΓ_n=0.57 eV 6, Γ_γ=33 meV 2.
4742.94			45 2	E(n)(lab)=19.65 keV.
4743.15			62 3	E(n)(lab)=19.86 keV.
4746.65			73 3	E(n)(lab)=23.39 keV.
4746.80			13 2	E(n)(lab)=23.54 keV.
4747.44	[3/2]$^-$	1	48 6	E(n)(lab)=24.19 keV, gΓ_n=6.71 eV 34, Γ_γ=24 meV 3.
4749.41			39 3	E(n)(lab)=26.17 keV.
4752.41			60 4	E(n)(lab)=29.19 keV.
4753.02			7 2	E(n)(lab)=29.81 keV.
4753.99	1/2$^+$	0	54 20	E(n)(lab)=30.78 keV, gΓ_n=207.2 eV 21, Γ_γ=54 meV 20.
4754.41	[1/2]$^-$	1	25 3	E(n)(lab)=31.21 keV, gΓ_n=3.55 eV 54, Γ_γ=25 meV 3.
4755.77			4 1	E(n)(lab)=32.58 keV.
4757.67			3 1	E(n)(lab)=34.49 keV.
4763.32	3/2$^-$	1	69 24	E(n)(lab)=40.18 keV, gΓ_n=89.6 eV 34, Γ_γ=35 meV 12.
4766.01			33 4	E(n)(lab)=42.89 keV.
4766.85			32 40	E(n)(lab)=43.74 keV.
4770.51			9 3	E(n)(lab)=47.42 keV.
4770.61			64 6	E(n)(lab)=47.53 keV.
4771.74			34 4	E(n)(lab)=48.66 keV.
4772.56	[3/2]$^-$	1	59 6	E(n)(lab)=49.49 keV, gΓ_n=6.1 eV 13, Γ_γ=30 meV 3.
4773.40	1/2$^+$	0	28 14	E(n)(lab)=50.34 keV, gΓ_n=270 eV 4, Γ_γ=28 meV 14.
4773.41			73 10	E(n)(lab)=50.35 keV.
4776.29	[3/2]$^-$	1	47 5	E(n)(lab)=53.25 keV, gΓ_n=12 eV 2.
4777.97			20 5	E(n)(lab)=54.94 keV.
4778.22	[1/2]$^-$	1	21 5	E(n)(lab)=55.19 keV, gΓ_n=42.8 eV 32, Γ_γ=21 meV 5.
4781.92			218 15	E(n)(lab)=58.92 keV.
4782.34	1/2$^+$	0	53 18	E(n)(lab)=59.34 keV, gΓ_n=73.2 eV 36, Γ_γ=53 meV 18.
4783.66	[3/2]$^-$	1	59 7	E(n)(lab)=60.67 keV, gΓ_n=11.0 eV 21, Γ_γ=30 meV 4.
4784.38			82 8	E(n)(lab)=61.4 keV.
4785.74	3/2$^-$	1	61 28	E(n)(lab)=62.77 keV, gΓ_n=114 eV 8, Γ_γ=31 meV 14.
4789.61			10 4	E(n)(lab)=66.66 keV.
4791.83	3/2$^-$	1	66 8	E(n)(lab)=68.9 keV, gΓ_n=0.46 keV 8, Γ_γ=33 meV 4.
4791.94			120 25	E(n)(lab)=69.01 keV.
4792.22			16 7	E(n)(lab)=69.29 keV.
4795.42			16 6	E(n)(lab)=72.52 keV.
4795.92			62 8	E(n)(lab)=73.02 keV.
4797.12	[1/2]$^-$	1	28 13	E(n)(lab)=74.23 keV, gΓ_n=0.190 keV 9, Γ_γ=28 meV 13.
4800.64			65 9	E(n)(lab)=77.77 keV.

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^{138}**Ba(n,γ),(n,n):resonances** **2006MuZX (continued)**

$\underline{^{139}\text{Ba Levels (continued)}}$

E(level)[†]	J^π	L	g$\Gamma_n\Gamma_\gamma$/Γ (meV)	Comments
4802.32	$1/2^+$	0	97 *19*	E(n)(lab)=79.47 keV, gΓ_n=0.233 keV *7*, Γ_γ=97 meV *19*.
4804.30			34 *16*	E(n)(lab)=81.46 keV.
4804.51			226 *19*	E(n)(lab)=81.67 keV.
4806.52			68 *8*	E(n)(lab)=83.7 keV.
4810.18			32 *7*	E(n)(lab)=87.38 keV.
4811.89	$[3/2]^-$	1	80 *10*	E(n)(lab)=89.11 keV, gΓ_n=(20) eV, Γ_γ=40 meV *5*.
4813.97			37 *7*	E(n)(lab)=91.2 keV.
4814.52			234 *20*	E(n)(lab)=91.76 keV.
4817.95			72 *9*	E(n)(lab)=95.21 keV.
4819.26			106 *12*	E(n)(lab)=96.53 keV.
4819.52			61 *9*	E(n)(lab)=96.79 keV.
4820.47			49 *8*	E(n)(lab)=97.75 keV.
4822.11			38 *8*	E(n)(lab)=99.4 keV.
4822.48			56 *10*	E(n)(lab)=99.77 keV.
4822.61			72 *11*	E(n)(lab)=99.91 keV.
4823.33			88 *11*	E(n)(lab)=100.63 keV.
4823.71			51 *9*	E(n)(lab)=101.01 keV.
4824.44			54 *9*	E(n)(lab)=101.75 keV.
4825.04			153 *16*	E(n)(lab)=102.35 keV.
4825.99	$[1/2]^-$	1	20 *7*	E(n)(lab)=103.31 keV, gΓ_n=21 eV *7*, Γ_γ=20 meV *7*. gΓ_n=21.000 eV listed in 2006MuZX, evaluators assume a misprint.
4826.55			189 *54*	E(n)(lab)=103.87 keV.
4828.12	$1/2^+$	0	67 *19*	E(n)(lab)=105.46 keV, gΓ_n=367 eV *14*, Γ_γ=67 meV *19*.
4829.84	$[3/2]^-$	1	56 *7*	E(n)(lab)=107.19 keV, gΓ_n=33 eV *7*, Γ_γ=26 meV *4*.
4830.70			70 *9*	E(n)(lab)=108.05 keV.
4831.49			77 *11*	E(n)(lab)=108.85 keV.
4831.79			46 *10*	E(n)(lab)=109.15 keV.
4832.03			51 *10*	E(n)(lab)=109.39 keV.
4832.63			162 *18*	E(n)(lab)=110 keV.
4834.58	$1/2^+$	0	29 *7*	E(n)(lab)=111.96 keV, gΓ_n=211 eV *11*, Γ_γ=29 meV *7*.
4835.33	$[3/2]^-$	1	84 *22*	E(n)(lab)=112.72 keV, gΓ_n=24 eV *7*, Γ_γ=42 meV *10*.
4838.26			40 *11*	E(n)(lab)=115.67 keV.
4839.08	$3/2^-$	1		E(n)(lab)=116.5 keV, gΓ_n=0.38 keV *4*.
4839.23	$1/2^+$	0	90 *42*	E(n)(lab)=116.65 keV, gΓ_n=383 eV *25*.
4839.70			127 *20*	E(n)(lab)=117.12 keV.
4846.11			98 *40*	E(n)(lab)=123.58 keV.
4847.62			54 *11*	E(n)(lab)=125.1 keV.
4849.20	$[1/2]^-$	1	35 *10*	E(n)(lab)=126.69 keV, gΓ_n=52 eV *8*, Γ_γ=35 meV *10*.
4849.53			54 *12*	E(n)(lab)=127.02 keV.
4849.86			80 *14*	E(n)(lab)=127.35 keV.
4852.14	$3/2^-$	1	83 *34*	E(n)(lab)=129.65 keV, gΓ_n=0.54 keV *4*, Γ_γ=42 meV *17*.
4852.34			48 *30*	E(n)(lab)=129.85 keV.
4854.60			47 *11*	E(n)(lab)=132.13 keV.
4855.32			71 *13*	E(n)(lab)=132.85 keV.
4856.16			39 *11*	E(n)(lab)=133.7 keV.
4856.91			114 *16*	E(n)(lab)=134.46 keV.
4859.45	$1/2^+$	0	85 *15*	E(n)(lab)=137.01 keV, gΓ_n=1.60 keV *5*, Γ_γ=85 meV *15*.
4861.31			74 *14*	E(n)(lab)=138.89 keV.
4861.48	$[3/2]^-$	1	55 *13*	E(n)(lab)=139.06 keV, gΓ_n=134 eV *19*, Γ_γ=26 meV *7*.
4862.58			49 *12*	E(n)(lab)=140.17 keV.
4863.34			100 *16*	E(n)(lab)=140.93 keV.
4864.68			55 *11*	E(n)(lab)=142.28 keV.
4865.61			39 *10*	E(n)(lab)=143.22 keV.
4866.94			50 *11*	E(n)(lab)=144.56 keV.
4869.12			62 *15*	E(n)(lab)=146.76 keV.
4869.35			66 *15*	E(n)(lab)=146.99 keV.
4869.96			68 *14*	E(n)(lab)=147.6 keV.

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^{138}Ba(n,γ),(n,n):resonances   **2006MuZX** **(continued)**

$\underline{^{139}\text{Ba Levels (continued)}}$

E(level)†	J$^{\pi}$	L	g$\Gamma_n\Gamma_\gamma/\Gamma$ (meV)	Comments
4872.75			94 *18*	E(n)(lab)=150.41 keV.
4873.71	3/2$^-$	1	151 *60*	E(n)(lab)=151.38 keV, gΓ_n=0.34 keV *3*, Γ_γ=76 meV *30*.
4874.84			110 *20*	E(n)(lab)=152.52 keV.
4877.18			51 *16*	E(n)(lab)=154.87 keV.
4879.37			78 *18*	E(n)(lab)=157.08 keV.
4880.70	[3/2]$^-$	1	182 *60*	E(n)(lab)=158.42 keV, gΓ_n=0.45 keV *3*, Γ_γ=91 meV *30*.
4883.25			63 *16*	E(n)(lab)=160.99 keV.
4883.75			91 *17*	E(n)(lab)=161.49 keV.
4885.24			54 *15*	E(n)(lab)=162.99 keV.
4885.76			57 *15*	E(n)(lab)=163.52 keV.
4887.47			44 *15*	E(n)(lab)=165.24 keV.
4889.05			181 *31*	E(n)(lab)=166.83 keV.
4889.22			96 *26*	E(n)(lab)=167 keV.
4890.49			68 *17*	E(n)(lab)=168.28 keV.
4890.86	[3/2]$^-$	1	69 *17*	E(n)(lab)=168.65 keV, gΓ_n=38 eV *20*, Γ_γ=35 meV *9*.
4891.59			137 *22*	E(n)(lab)=169.39 keV.
4894.15	[3/2]$^-$	1	139 *63*	E(n)(lab)=171.97 keV, gΓ_n=105 eV *22*, Γ_γ=70 meV *32*.
4895.66	3/2$^-$	1	259 *49*	E(n)(lab)=173.49 keV, gΓ_n=103 eV *19*.
4897.70			77 *20*	E(n)(lab)=175.54 keV.
4898.11			68 *19*	E(n)(lab)=175.96 keV.
4899.08			100 *22*	E(n)(lab)=176.93 keV.
4901.81	[3/2]$^-$	1	80 *18*	E(n)(lab)=179.68 keV, gΓ_n=90 eV *26*, Γ_γ=40 meV *9*.
4903.68	1/2$^+$	0	80 *18*	E(n)(lab)=181.57 keV, gΓ_n=0.40 keV *4*, Γ_γ=80 meV *18*.
4906.18			144 *24*	E(n)(lab)=184.09 keV.
4907.90			41 *16*	E(n)(lab)=185.82 keV.
4909.62			86 *21*	E(n)(lab)=187.55 keV.
4910.51			176 *27*	E(n)(lab)=188.45 keV.
4911.68			86 *20*	E(n)(lab)=189.63 keV.
4912.10	[1/2]$^-$	1	35 *17*	E(n)(lab)=190.05 keV, gΓ_n=89 eV *27*, Γ_γ=35 meV *17*.
4913.00			83 *20*	E(n)(lab)=190.96 keV.
4913.80			54 *18*	E(n)(lab)=191.76 keV.
4914.38			69 *19*	E(n)(lab)=192.35 keV.
4916.29			39 *32*	E(n)(lab)=194.27 keV.
4916.80	1/2$^+$	0	56 *31*	E(n)(lab)=194.78 keV, gΓ_n=0.82 keV *4*, Γ_γ=56 meV *31*.
4918.35			30 *23*	E(n)(lab)=196.35 keV.
4919.68			44 *17*	E(n)(lab)=197.69 keV.
4920.53			50 *19*	E(n)(lab)=198.54 keV.
4920.91			89 *22*	E(n)(lab)=198.92 keV.
4921.78			35 *16*	E(n)(lab)=199.8 keV.

† S(n)(^{139}Ba)+E(n)(c.m.), where S(n)=4723.43 *4* (2012Wa38), E(n)(c.m.) is deduced from listed E(n)(lab).