^{116}Sn(γ,γ') 1998Go07

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Jean Blachot	NDS 111, 717 (2010)	1-Dec-2009

^{116}Sn(γ,γ') E=4.1, 7.5, 10 MeV bremsstrahlung.

^{116}Sn(pol γ,γ') E=12 MeV bremsstrahlung.

The NRF experiments reported here have been performed at the linearly polarized bremsstrahlung facility at the 15 MeV linac in Gent. Both angular correlations and cross section measurements using unpolarized bremsstrahlung (γ,γ') experiments and polarization measurements using linearly polarized bremsstrahlung experiments were carried out. For the polarized measurements partially linearly polarized "off-axis'' bremsstrahlung was used with a beam energy of 12 MeV. The (γ,γ') experiments were performed with end point energies of 7.5 and 10.0 MeV. They link up with previous measurements performed at the bremsstrahlung facility of the 4 MeV Dynamitron in Stuttgartin which the low-energy region below about 4 MeV was investigated (1994Go25).

The targets consisted of 20 mm diameter disks of highly isotopically enriched metallic Sn, sandwiched between H_3BO_3 disks of the same diameter. The well known transitions in ^{11}B and ^{16}O served as a standard for energy and efficiency calibration measurements. The resonantly scattered photons from the NRF target were detected in four hyperpure Ge detectors with an efficiency at 1.33 MeV varying between 40 and 70% relative to a standard 3 in.33 in. NaI crystal. Γ_0 and B(El) were calculated assuming pure g.s. transition.

^{116}Sn Levels

E(level)	J^π	Comments
0.0		
4199.8 *3*	1	Γ_0=73 *6*.
4547.1 *4*	1^-	Γ_0=95 *11*, B(E1)=2.90 *33*.
4892.8 *4*	1^-	Γ_0=60 *8*, B(E1)=1.47 *20*.
4980.3 *5*	1	Γ_0=135 *13*.
5085.7 *6*	1	Γ_0=72 *11*, B(E1)=2.90 *33*.
5391.2 *6*	1	Γ_0=42 *12*.
5453.5 *4*	$1^{(-)}$	Γ_0=212 *18*, B(E1)=3.74 *32*.
5550.7 *5*	1	Γ_0=99 *16*.
5555.4 *5*	1	Γ_0=128 *16*.
5630.2 *5*	1^-	Γ_0=66 *13*, B(E1)=1.06 *21*.
5834.7 *5*	1	Γ_0=269 *22*.
6006.2 *5*	$1^{(-)}$	Γ_0=388 *38*, B(E1)=5.1 *5* 3.
6083.0 *5*	1	Γ_0=170 *38*.
6088.7 *4*	1	Γ_0=538 *35*.
6180.5 *4*	1^-	Γ_0=428 *30*, B(E1)=5.2 *4*.
6216.7 *5*	1^-	Γ_0=490 *54*, B(E1)=5.8 *6*.
6289.0 *4*	1^-	Γ_0=1002 *48*, B(E1)=11.5 *6*.
6298.7 *5*	1	Γ_0=296 *31*.
6323.0 *6*	1^-	Γ_0=178 *31*, B(E1)=2.0 *4*.
6339.3 *5*	1^-	Γ_0=390 *38*, B(E1)=4.4 *4*.
6363.6 *5*	1	Γ_0=493 *44*, Γ_0^2/Γ=253 *28*.
6371.9 *5*	1^-	Γ_0=513 *35*, B(E1)=5.7 *4*.
6398.5 *5*	1	Γ_0=479 *54*.
6423.1 *5*	1^-	Γ_0=454 *48*, B(E1)=4.9 *5*, Γ_0^2/Γ=253 *28*.
6446.5 *5*	1^-	Γ_0=451 *40*, B(E1)=4.8 *4*.
6457.2 *5*	1^-	Γ_0=242 *47*, B(E1)=2.6 *5*.
6466.1 *10*	1	Γ_0=254 *65*.
6472.3 *3*	1^-	Γ_0=770 *65*, B(E1)=8.1 *7*.
6484.1 *4*	1^-	Γ_0=551 *47*, B(E1)=5.8 *5*.
6507.6 *6*	1^-	Γ_0=576 *44*, B(E1)=6.0 *5*.
6518.7 *4*	1^-	Γ_0=512 *51*, B(E1)=5.3 *5*, Γ_0^2/Γ=402 *37*.
6581.9 *6*	1^-	Γ_0=477 *41*, B(E1)=4.8 *4*.
6593.2 *5*	1^-	Γ_0=418 *42*, B(E1)=4.2 *4*.
6654.9 *7*	(1)	Γ_0=173 *46*.

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^{116}Sn(γ,γ') 1998Go07 (continued)

^{116}Sn Levels (continued)

E(level)	J^{π}	Comments
6741.4 *6*	(1)	Γ_0=173 *31*.
6749.5 *5*	1	Γ_0=237 *36*.
6834.1 *3*	1	Γ_0=162 *24*.
6877.0 *7*	1	Γ_0=115 *25*.
6889.4 *5*	1^-	Γ_0=473 *45*, B(E1)=4.1 *4*.
6967.3 *5*	1	Γ_0=173 *34*.
7011.5 *6*	1	Γ_0=380 *50*,Γ_0^2/Γ=187 *29*.
7125.6 *5*	1^-	Γ_0=318 *29*, B(E1)=2.5 *4*.
7145.8 *6*	1	Γ_0=204 *49*.
7154.7 *5*	1^-	Γ_0=390 *35*, B(E1)=3.1 *6*.
7165.0 *6*	1	Γ_0=266 *32*.
7203.7 *8*	1	Γ_0=171 *27*.
7215.3 *6*	1	Γ_0=271 *50*.
7235.5 *11*	1	Γ_0=282 *45*.
7241.4 *6*	1	Γ_0=1030 *120*,Γ_0^2/Γ=385 *42*.
7319.9 *7*	1	Γ_0=403 *89*.
7353.4 *3*	1^-	Γ_0=460 *38*, B(E1)=3.32 *27*.
7479.8 *14*	1^-	Γ_0=441 *92*, B(E1)=3.0 *6* (seen only in 10 MeV).
7597.8 *10*	1	Γ_0=250 *40*.
7654.3 *7*	1^-	Γ_0=685 *175*, B(E1)=4.4 *11*.
7758.8 *9*	1	Γ_0=308 *78*.
7826.3 *10*	$1^{(-)}$	Γ_0=456 *126*, B(E1)=2.7 *7*.
7896.6 *8*	1	Γ_0=838 *115*.
7917.1 *7*	1^-	Γ_0=511 *76*, B(E1)=2.9 *4*.
7925.2 *8*	$1^{(+)}$	Γ_0=544 *123*, B(E1)=0.28 *6*.
7933.7 *6*	1	Γ_0=594 *60*.
7947.0 *8*	1	Γ_0=230 *33*.
7961.1 *6*	1^-	Γ_0=341 *88*, B(E1)=1.9 *5*.
7991.6 *8*	1^-	Γ_0=675 *77*, B(E1)=3.8 *4*.
8187.4 *7*	1	Γ_0=512 *70*.
8214.3 *6*	1^-	Γ_0=866 *60*, B(E1)=4.47 *31*.
8234.5 *8*	1	Γ_0=441 *94*.
8247.8 *7*	1	Γ_0=254 *53*.
8282.9 *9*	1	Γ_0=214 *48*.
8361.3 *8*	1^-	Γ_0=594 *73*, B(E1)=2.9 *4*.
8427.9 *11*	1	Γ_0=413 *80*.
8457.9 *8*	1	Γ_0=242 *55*.
8739.7 *7*	(1)	Γ_0=364 *67*.