^{9}Be(^{48}Ca,Xγ) 2004So30

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh and Jun Chen[#]	NDS 126, 1 (2015)	31-Mar-2015

2004So30: E=60.3 MeV/nucleon ^{48}Ca beam was produced at GANIL and incident on a ^{9}Be target of 2.76 mg/cm^2. The SPEG magnetic spectrometer was operated in a dispersive mode to identify the emerging fragments detected at the focal plane. Their energy losses and positions in the focal plane were determined by the combination of ionization and drift chambers. Their residual energies were obtained in a thick plastic scintillator. The time-of-flight was derived from the timing signals in the plastic scintillator with respect to the cyclotron radio frequency. It was corrected by the use of the position of the fragments in the focal plane of the SPEG spectrometer to obtain a better time resolution and subsequently a better identification of the nuclei. Measured Eγ, Iγ, $\gamma\gamma$, $\gamma(\theta)$ with an array of 74 BaF_2 and 3 segmented Ge clover detectors to identify the γ-rays emitted in flight by the excited fragments. The segmented Ge detectors at 85°, 122°, and 136° to the beam allowed for angular distribution measurements.

^{43}Cl Levels

E(level)	J$^\pi$	Comments
0.0	(1/2$^+$)	
330 *5*	(3/2$^+$)	
946 *7*	(5/2$^+$)	
1338 *6*	(5/2$^+$)	E(level): level not included in Adopted Levels due to revised placement of 1338γ.
1830 *8*	(7/2$^+$)	E(level): level not included in Adopted Levels due to revised placement of 882γ.

$\gamma(^{43}Cl)$

Eγ	Iγ	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$	Mult.	Comments
330 *5*	100	330	(3/2$^+$)	0.0	(1/2$^+$)	D	Mult.: ΔJ=1 transition from Iγ(122°)/Iγ(136°)=1.4 *4*; Iγ(85°)/Iγ(136°)=2.0 *4*.
614 *5*	60	946	(5/2$^+$)	330	(3/2$^+$)	D	Mult.: ΔJ=1 transition from Iγ(122°)/Iγ(136°)=1.3 *4*; Iγ(85°)/Iγ(136°)=1.7 *4*.
881[†] *5*	50	1830	(7/2$^+$)	946	(5/2$^+$)	D	Note that this γ was not observed in coin with 330γ or 614γ in 2012St12, thus its placement from 1830 level is suspect. Mult.: ΔJ=1 transition from Iγ(122°)/Iγ(136°)=1.3 *3*; Iγ(85°)/Iγ(136°)=2.0 *5*.
1338 *6*	30	1338	(5/2$^+$)	0.0	(1/2$^+$)	(Q)	Placement as ground-state transition is incorrect in view of 1338γ observed in coin with 327γ in 2012St12. Mult.: ΔJ=2 or 0 transition from Iγ(122°)/Iγ(136°)=1.0 *4*; Iγ(85°)/Iγ(136°)=1.0 *3*.
1509[†] *10*	20	1830	(7/2$^+$)	330	(3/2$^+$)		Eγ: this γ-ray is specified at a 2.5σ confidence level (2004So30).

[†] Placement of transition in the level scheme is uncertain.

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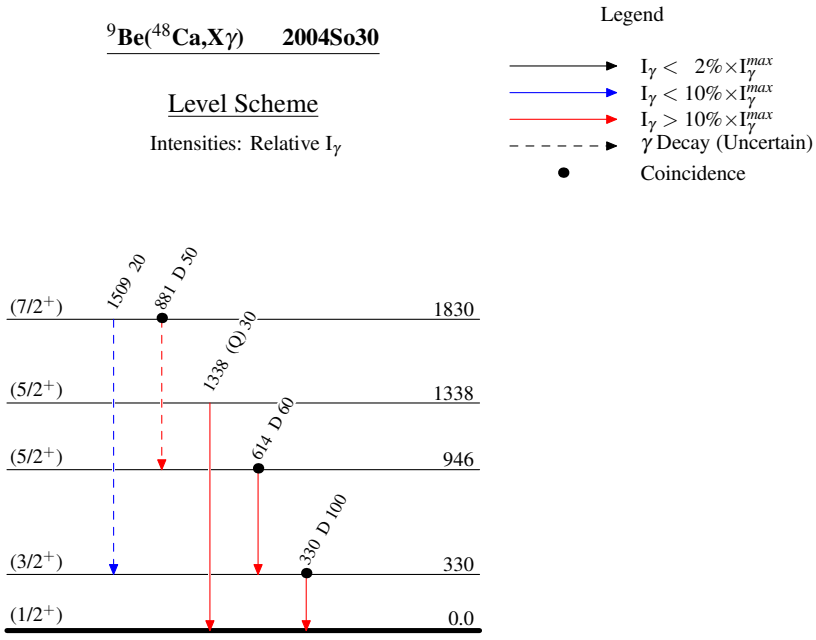
Level Scheme

Intensities: Relative I_γ



$^{43}_{17}Cl_{26}$