C(^{30}Mg,^{30}Mg′γ),Ni(^{30}Mg,^{30}Mg′) 2005Ni11,2001Ch56,1999Pr09

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	M. S. Basunia, A. Chakraborty	NDS 197,1 (2024)	31-May-2024

Also includes ^{197}Au(^{30}Mg,^{30}Mg′γ).

Others: 2005Ni09, 2005Sc27, 2004Sc43 (Same group of 2005Ni11).

2005Ni11,2005Ni09,2005Sc27: Ni(^{30}Mg,^{30}Mg′γ): ^{30}Mg produced from 1.4 GeV protons bombardment on uranium carbide or graphite target at CERN PS booster facility; ^{30}Mg ionized, mass separated by ISOLDE, accelerated at 2.25 MeV/u and bombarded on a natural nickel target; scattered ^{30}Mg′ detected by double sided silicon strip detector, γ-rays detected by MINIBALL array, consisting of 8 triple cluster detectors, each combining 3 sixfold segmented HPGe detectors; deduced B(E2).

2001Ch56: C(^{30}Mg,^{30}Mg′γ): ^{30}Mg produced from ^{36}S fragmentation, E=77A MeV, on ^{9}Be at RIKEN; ^{30}Mg secondary beam, E=37A MeV, identified by ΔE-TOF and ΔE-E spectra; γ-rays detected by two sets of 7 hexagonal NaI detectors; deduced B(E2).

1999Pr09: ^{197}Au(^{30}Mg,^{30}Mg′γ): ^{30}Mg produced from ^{40}Ar fragmentation, E=90 MeV/u, on ^{9}Be and separated by A1200 fragment separator at NSCL and pass through gold foil and stopped in a fast-slow plastic phoswich detector; γ-rays detected by NSCL NaI(Tl) array consists of 38 cylindrical NaI(Tl) detectors; deduced B(E2).

2006FuZX: He(^{30}Mg,Mg′γ): The primary beam of ^{40}Ar, E=63 MeV/nucleon, bombarded the carbon and beryllium; RIPS at RIKEN is used for fragment separation; secondary beams, on average of 40 MeV/nucleon, bombarded a liquid helium target; in both stages particles were identified by energy loss and time-of-flight information; Measured γ-rays in-flight using GRAPE γ-array comprised of 18 planer Ge detectors; reported 984.2 *13*, 1483.1 *5*, 1819.3 *9*, and 1893.5 *19* (in keV) γ-ray transitions without placement. The 1893.5γ is reported only by 2006FuZX.

^{30}Mg Levels

E(level)†	Jπ†	$T_{1/2}$	Comments
0	0^+		
1483.14 *11*	2^+	1.4 ps *2*	Measured B(E2)↑=0.024 *3* (2005Ni11,2005Ni09,2005Sc27), 0.029 *3* (1999Pr09), and 0.043 *6* (2001Ch56,2001Ch11); Weighted average=0.028 *2*. $T_{1/2}$: deduced using B(E2)↑=0.028 *2* (weighted average) and γ-ray properties, i.e. Eγ and branching.

† From the Adopted Levels.

γ(^{30}Mg)

Eγ†	Iγ	Ei(level)	J_i^π	E_f	J_f^π	Mult.
1483.1 *2*	100	1483.14	2^+	0	0^+	E2

† From the Adopted Gammas.

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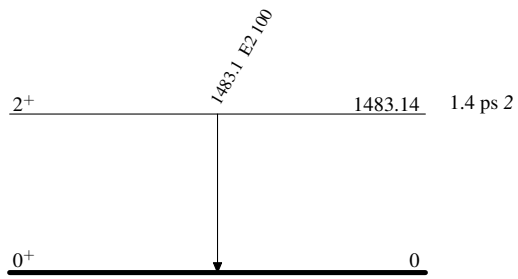
Level Scheme

Intensities: Relative I_γ



$^{30}_{12}Mg_{18}$