^{164}Dy(^{3}He,α) 1975Gr37

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	C. W. Reich, Balraj Singh	NDS 111, 1211 (2010)	12-Apr-2010

1975Gr37: E= 25 MeV. Measured cross sections. FWHM=45.
2009Ny01, 2010Ny01: ^{164}Dy(^{3}He,$\alpha\gamma$), E=38 MeV, measured γ and particle spectra using CACTUS multidetector array of 28 NaI detectors for γ rays and eight ΔE-E Si detectors for particles. Deduced γ-ray (radiative) strength functions and level densities. A pygmy resonance was found at 2.8 MeV with a width of 0.8 MeV *2*.
Additional information 1.

^{163}Dy Levels

E(level)[†]	J$^{\pi}$[‡]	Γ	L[#]	dσ/dΩ (μb/sr) At 40°	Comments
167	(9/2$^-$)		(5)	38	σ(^{3}He,α at 40°)/σ(d,t at 125°)= 1.2 *3*.
275 *8*				7	
333 *8*	(9/2$^+$)		(4)	9	σ(^{3}He,α at 40°)/σ(d,t at 125°)=0.2.
495 *5*	(13/2$^+$)		(6)	166	σ(^{3}He,α at 40°)/σ(d,t at 125°)= 2.5 *6*.
552 *8*	(7/2$^-$)		(3)	23	σ(^{3}He,α at 40°)/σ(d,t at 125°)=0.3.
638 *8*				7	
849 *5*	(11/2$^-$)			112	J$^{\pi}$: probable 11/2[505] state, based on large σ and by analogy with ^{161}Dy. Note that 1980St31 tentatively suggest that the bandhead is at 514.
1037 *8*				12	
1077 *8*				10	
1141 *8*				12	
1276 *8*				15	
1491 *8*				32	
1597 *8*				23	
1667 *8*				14	
1710 *8*				9	
2256 *8*				17	
2369 *8*				22	
2465 *8*				29	
2810 *90*		0.86 MeV *19*			E(level): pygmy resonance (2009Ny01,2010Ny01). σ=0.72 mb *12* (2010Ny01).

[†] Relative to 167 level. Uncertainty=5 to 8 keV (1975Gr37).
[‡] From 1975Gr37. The parentheses are added by the evaluators.
[#] From σ(^{3}He,α) at 40°/σ(d,t) at 125°, using σ(d,t) from 1970Gr46. Such ratios are indicators of L-transfer, as explained by 1971Bu01. Essentially, (d,t) cross sections decrease an order of magnitude as L increases from 1 to 6, whereas the (^{3}He,α) cross sections increase by a similar factor.