^{168}Er(^{3}He,α) 1972Lo20

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh and Jun Chen	NDS 191,1 (2023)	22-Aug-2023

1972Lo20: E(^{3}He)=25.5 MeV from the Niels Bohr Institute FN tandem accelerator. Carbon backed, >95% enriched ^{168}Er target of 100-150 μg/cm^2 thickness. Measured Eα, Iα, absolute σ, $\sigma(\theta)$ at θ=45° and 70° using a single-gap broad-range magnetic spectrometer with FWHM≈40 keV with analyzed particles recorded on photographic plates. Measured σ with statistical uncertainty of 5% for strong peaks and up to 30% for weaker peaks. The $\sigma(^{3}He,\alpha)/\sigma(d,t)$ ratios using (d,t) data from 1969Tj01 were used to characterize states and interpret level populations.

Nilsson configuration assignments are from literature.

^{167}Er Levels

E(level)	J$^\pi$	Comments
0‡@	7/2$^+$#	
79.3†@	(9/2)$^+$#	Measured dσ/dΩ (μb/sr): ≈2 (45°), ≈4 (70°).
177.6†‡@	(11/2)$^+$#	E(level): 177.971 in the Adopted Levels.
294@ *15*	(13/2)$^+$#	Measured dσ/dΩ (μb/sr): 141 (45°), 27 (70°).
427 *15*	(7/2)$^-$#	Measured dσ/dΩ (μb/sr): 18 (45°), 9 (70°). Configurations: ν1/2[521], ν5/2[512].
432.4†‡@	(15/2)$^+$#	E(level): 434.447 in the Adopted Levels.
592‡@ *15*	(17/2)$^+$#	
772‡@ *15*	(19/2)$^+$#	
812‡& *15*		
839 *15*		Measured dσ/dΩ (μb/sr): 47 (45°), ≈12 (70°). Configuration: 9/2$^-$, ν5/2[523].
887 *15*		Measured dσ/dΩ (μb/sr): 43 (45°), ≈15 (70°). Configuration: 7/2$^-$, ν5/2[521].
939& *15*		Measured dσ/dΩ (μb/sr): 18 (45°), ≈12 (70°).
1049 *15*		Measured dσ/dΩ (μb/sr): 74 (45°), 28 (70°). Configuration: 11/2$^-$, ν11/2[505].
1087 *15*		Measured dσ/dΩ (μb/sr): ≈18 (45°), ≈16 (70°). Configuration: 3/2$^+$, ν3/2[402].
1104& *15*		Measured dσ/dΩ (μb/sr): 114 (45°), 34 (70°).
1135‡ *15*		Configuration: 1/2$^+$, ν1/2[400].
1519 *15*		Measured dσ/dΩ (μb/sr): 12 (45°). Configuration: 7/2$^-$, ν5/2[521].
1758 *15*		Measured dσ/dΩ (μb/sr): 13 (45°).
2573 *15*		Measured dσ/dΩ (μb/sr): 24 (45°), 10 (70°).

† Previously known energy levels used for energy calibration in 1972Lo20.
‡ No dσ/dΩ given in Table 2 of 1972Lo20, implying either weak population or none at all.
# From the Adopted Levels.
@ Band(A): ν7/2[633].
& Band(B): ν5/2[642].

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Band(B): ν5/2[642]

1104

939

Band(A): ν7/2[633] **812**

$(19/2)^+$ **772**

$(17/2)^+$ **592**

$(15/2)^+$ **432.4**

$(13/2)^+$ **294**

$(11/2)^+$ **177.6**

$(9/2)^+$ **79.3**

$7/2^+$ **0**

$^{167}_{68}Er_{99}$