^{12}C(^{3}He,t) 1983St10

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	J. H. Kelley, J. E. Purcell and C. G. Sheu	NP A968, 71 (2017)	1-Jan-2017

1969Ba06: ^{12}C(^{3}He,t) E=40-50 MeV, measured $\sigma(E_t,\theta)$. Deduced optical-model parameters. ^{12}N deduced levels.
1970Ar05: ^{12}C(^{3}He,t) E=36 MeV, measured $\sigma(E_t,\theta)$. ^{12}N levels deduced J, π, isobaric analogs.
1970Si16: ^{12}C(^{3}He,t) E=22.3 to 30.6 MeV, measured σ.
1974Wi16, 1976Wi05: ^{12}C(^{3}He,t) E=217 MeV, measured $\sigma(E_t,\theta)$.
1976Ce02: ^{12}C(^{3}He,t) E=44 MeV, measured $\sigma(\theta)$. ^{12}N level deduced J, π, T.
1976Ma15: ^{12}C(^{3}He,t) E=49.3 MeV, measured $\sigma(E_t,\theta)$. ^{12}N deduced levels, Γ.
1981Aa01: ^{12}C(^{3}He,t) E=52 MeV, measured $\sigma(E_t,\theta_t)$, Pt-coin, $\sigma(E1, \theta_1,\theta_2)$. Deduced reaction mechanisms.
1982Ta05: ^{12}C(^{3}He,t) E=130,170 MeV, measured $\sigma(E_t)$, $\sigma(\theta)$. ^{12}N deduced IAS of T=1, GDR.
1983Fr10: ^{12}C(^{3}He,t) E=200 MeV, measured $\sigma(E_t)$.
1983Ga15,1986Co03,1987Be25,1988Ro17,1990Ga19,1993Ro09: ^{12}C(^{3}He,t) E=0.6-2.3 GeV, measured $\sigma(E_t,\theta=0°)$. Deduced Gamow-Teller strength distribution systematics, isobar excitation role. ^{12}N deduced selective spin-isospin mode excitation.
1983St10: ^{12}C(^{3}He,t) E=75,81 MeV, measured $\sigma(E_t,\theta_t)$, $\sigma(E_t)$. DWBA analysis.
1984Ab06,1988Ab08: ^{12}C(^{3}He,t) E At 4.37-10.78 GeV/c, measured $\sigma(\theta)$ vs energy transfer. Deduced target Δ-isobar excitation role.
1984Ga36: ^{12}C(^{3}He,t) E=200,600 MeV, analyzed $\sigma(E_t,\theta_t)$. Deduced isobar resonance role.
1984Ta11: ^{12}C(^{3}He,t) E=197 MeV, measured $\sigma(E_t)$, θ=15°. ^{12}N deduced levels, isovector GDR analog.
1984Va43: ^{12}C(^{3}He,t) E=75,81 MeV, measured $\sigma(E_t,\theta_t)$, $\sigma(\theta_t)$. ^{12}N deduced transition strengths.
1987El14: ^{12}C(^{3}He,t) E=0.2,0.9,2 GeV, measured $\sigma(E_t,\theta_t)$.
1989Os03: ^{12}C(^{3}He,t) E=2 GeV, analyzed $\sigma(\theta_t,E_t)$.
1989Si21: ^{12}C(^{3}He,t) E At 4.4-10.79 GeV/c, analyzed Δ -peak shift.
1989Va09: ^{12}C(^{3}He,t) E=66-90 MeV, measured $\sigma(E_t,\theta_t)$. Deduced effective projectile-nucleon force parameters. DWBA analysis.
1991Gr03: ^{12}C(^{3}He,t) E=81 MeV. ^{12}N deduced isovector giant resonance. DWBA analysis.
1991He12: ^{12}C(^{3}He,t) E=2 GeV, measured $\sigma(E_t,\theta)$. Deduced isobar decay Γ target dependence.
1991Ja04: ^{12}C(^{3}He,t) ^{12}C(^{3}He,t) E=76.5, 200 MeV, measured $\sigma(E_t)$. Deduced Q-values for transitions to IAS, non-spin-flip charge exchange effective interaction.
1992He08: ^{12}C(^{3}He,t) E=2 GeV, measured energy transfer spectra, (π^+P)(t)-coin. Deduced Δ-resonance decay, absorption mechanism.
1994Os02: ^{12}C(^{3}He,t) E=2 GeV, analyzed $\sigma(\theta)$ vs energy transfer.
1996Ke04: ^{12}C(^{3}He,t) E=2 GeV, analyzed $\sigma(\theta_t,E_t)$. DWBA based t-matrix.
1994Ha40,1998Ha43,1998In02: ^{12}C(^{3}He,t) E=450 MeV, measured excitation energy spectra, proton, neutron $\sigma(\theta)$ following residual nucleus decay. ^{12}N deduced spin-isospin excitation modes, particle decay features.
2011Pe12: ^{12}C(^{3}He,t) E=140 MeV/nucleon, α=1-120 targets, analyzed cross section, B(GT), unit cross sections, distortion factors, volume integrals, kinematic factors.

^{12}N Levels

E(level)†	J$^\pi$†	Γ†	Comments
0	(1$^+$)		
960	(2$^+$)	<20 keV	Γ: See references in (1980Aj01).
1193 *10*	2$^-$	120 keV *20*	
1.80×10^3 *3*	1$^-$	0.75 MeV *25*	
2445 *10*	0$^+$	110 keV *20*	
3.14×10^3 *1*	(2$^+$,3$^-$)	220 keV *25*	
3.57×10^3 *1*	1$^+$	260 keV *30*	
4.14×10^3 *1*	2$^-$&4$^-$	830 keV *20*	E(level): Likely due to unresolved states.
5.37×10^3 *1*	3$^-$	150 keV *30*	
5.60×10^3? *1*		120 keV *50*	
6.40×10^3 *3*	(1$^-$)	1.20 MeV *30*	

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^{12}C(^{3}He,t) 1983St10 (continued)

^{12}N Levels (continued)

E(level)†	Jπ†	Γ†	Comments
7.40×10^3 *5*	(1$^-$)	1.20 MeV *50*	
7.70×10^3 *1*		200 keV *50*	
8.86×10^3? *10*		≈100 keV	E(level),Γ: From values listed in (1980Aj01).
9.80×10^3 *2*		0.45 MeV *10*	
10.30×10^3 *2*		0.45 MeV *10*	
11.00×10^3 *2*		0.35 MeV *10*	

† From (1983St10), see other less precise values listed in (1980Aj01).