^{12}C(e,e′) 1984Hi06,2000Vo04,1975Aj02

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

1967Af04: ^{12}C(e,e) E=100,200 MeV, measured $\sigma(\theta)$.
1967Cr01: ^{12}C(e,e′) E=100-200 MeV, measured σ(E(e′),θ), deduced levels, Γ_γ.
1968Dr01: ^{12}C(e,e′) E=140 MeV, measured σ(E(e′),θ), measured form factors, deduced giant resonance structure.
1968Pr01: ^{12}C(e,e′) E=100-200 MeV, measured σ(E(e′),θ=180°), deduced levels, J, π, Γ_γ.
1968Ri06: ^{12}C(e,e′) E=60-100 MeV, measured σ(E(e′),θ), deduced giant resonance structure.
1969Be21: ^{12}C(e,e) E=30-60 MeV, measured σ(E,θ). ^{12}C deduced charge radii.
1969Gu05,1970Gu12: ^{12}C(e,e′) E=200 MeV, measured σ(E(e′),θ), measured form factors, deduced giant resonance structure.
1969To01: ^{12}C(e,e′) E=183,200 MeV, measured σ(E(e′)), measured form factors. Analyzed ^{12}C*(10.84).
1969Va10: ^{12}C(e,e′) E=50,65,70 MeV, measured σ(E(e′)), measured form factors, deduced levels.
1970Li02: ^{12}C(e,e′) E=52-102 MeV, measured σ(E(e′),θ), measured form factors, deduced giant resonance structure.
1970Si08: ^{12}C(e,e) E=375,750 MeV, measured $\sigma(\theta)$. ^{12}C deduced charge distributions.
1969To10,1970To13: ^{12}C(e,e′) E=250 MeV, measured σ(E(e′),θ), measured form factors, deduced levels, giant resonance, J, π.
1971Be25: ^{12}C(e,e) E=30,60 MeV, measured $\sigma(\theta)$. ^{12}C deduced rms nuclear charge radii.
1971Na14: ^{12}C(e,e),(e,e′) E=183,250 MeV, measured $\sigma(\theta)$, σ(E$_{e'}$,θ). Deduced form factors. ^{12}C deduced rms radii, quadrupole moment, deformation parameters.
1971St10: ^{12}C(e,e),(e,e′) E=1,1.5,2.25,3,4 GeV, measured σ(E,θ). Deduced elastic, inelastic from factors.
1972Ja10: ^{12}C(e,e) Q=0.15-0.7 fm^{-1}, measured absolute cross sections. ^{12}C deduced charge radii.
1973Ch16: ^{12}C(e,e′) E=150 MeV, measured σ(E(e′),θ), deduced $\Gamma(\gamma_0)$(15.11).
1973Kl12: ^{12}C(e,e) E=374.6 MeV, measured σ(E,θ).
1974Ce01: ^{12}C(e,e′) E=50.5 MeV, measured σ(E(e′)), deduced resonance $\Gamma(\gamma_0)$.
1974In05: ^{12}C(e,e),(e,e′) measured charge form factors. Deduced α-clusters.
1978Fl09: ^{12}C(e,e′); measured form factors, deduced ^{12}C*(4.44) convection currents, ^{12}C*(16.1) spin megnetization contributions.
1978Fr03: ^{12}C(e,e′) E=32.8-62.2 MeV, measured σ(E(e′),θ), deduced resonance $\Gamma(\gamma_0)$(16.11).
1978Sh14: ^{12}C(e,e′) E=140 MeV; measured σ(E(e′)), deduced resonances.
1979Ba72: ^{12}C(e,e) E=27-87 MeV, measured σ(E,θ). ^{12}C deduced rms radius.
1979Ha14: ^{12}C(e$^-$,e$^-$),(e$^-$,e$^-$′),(e$^+$,e$^+$),(e$^+$,e$^+$′) E=very high, measured σ.
1979Fl08: ^{12}C(e,e′); measured σ(^{12}C*(12.71,15.11), deduced charge dependent isospin-mixing matrix element.
1980Ca07: ^{12}C(e,e) E=25-115 MeV, measured absulute σ. ^{12}C deduced ground-state charge distribution shape, rms charge radius.
1982Re12: ^{12}C(e,e) E=100-300 MeV, measured absolute $\sigma(\theta)$. ^{12}C deduced rms radius, charge distribution.
1983De53: ^{12}C(e,e′) E=80-330 MeV; measured σ(E(e′)), deduced resonances, J, π, Γ, $\Gamma(\gamma_0)$.
1984Hi06: ^{12}C(e,e′) E=50.7-338 MeV; measured σ(E(e′)), deduced resonances, J, π, Γ.
1984Ry01: ^{12}C(e,e′) E=150.6; measured σ(θ,E(e′)), deduced resonances.
1985Pa01: ^{12}C(e,e′γ) E=66.9 MeV; measured ^{12}C*(4.44 MeV) longitudinal form factor.
1986Of01,1986OfZZ: ^{12}C(e,e) E=238,374.5,419,431,747.2 MeV, measured form factor. Deduced reaction mechanism, deduced dispersive effect induced energy dependence.
1987Hi09: ^{12}C(e,e′) E=80-485 MeV; deduced ^{12}C levels excitation form factors.
1988Ko21: ^{12}C(pol. e,e) E≈250 MeV, measured asymmetry vs target voltage.
1989Ka36: ^{12}C(e,e) E=238-690 MeV, measured σ at form factor minimum. Deduced higher order processes role.
1990So03,1990Ko47,1991So08: ^{12}C(pol. e,e) E=250 MeV, measured parity violating electroweak asymmetry.
1991Br13: ^{12}C(e,e) E=238-690 MeV, measured σ. Deduced energy dependence causes.
1991Of01: ^{12}C(e,e) E≈240,430 MeV, measured $\sigma(\theta)$. Deduced form factor energy dependence features. ^{12}C deduced rms charge radius.
1995Ca14: ^{12}C(e,e′) E=60 MeV; measured B(E1)(10.84).
1995Lu25: ^{12}C(e,e),(e,e′) E=62 MeV, measured $\sigma(\theta)$.
2000Vo04: ^{12}C(e,e′) E=30-60 MeV; deduced magnetic dipole transition widths, isospin mixing, Coulomb matrix element.
2007Ch04: ^{12}C(e,e),(e,e′), analyzed $\sigma(\theta)$. ^{12}C deduced excited state density, related features.
2011Vo16: ^{12}C(e,e′) E=73 MeV; Measured E$_e$, I$_e$; deduced pair decay width.
2010Ch17: XUNDL dataset compiled by TUNL, 2010.
^{12}C(e,e′) E=29-78 MeV, measured reaction products. Deduced transition form factors, charge density, pair decay width of the

^{12}C(e,e′) 1984Hi06,2000Vo04,1975Aj02 (continued)

Hoyle state. The electron beams impinged on a 6.4 mg/cm^2, 98.9% ^{12}C target. Scattered electrons were measured at 69°<θ<141°. DWBA and PWBA were used to analyze the q (momentum) dependence for the transition, which is related to the transition width.

^{12}C Levels

$\Gamma_{\gamma 0}$: from (2000Vo04) except where noted.

E(level)[†]	J^π	$T_{1/2}$	Comments
0.0			*Nuclear charge radius* from measurements of the elastic scattering form factor. $R_{r.m.s.}$=2.471 fm *9* (=2.478 fm with dispersion corrections) (1991Of01). $R_{r.m.s.}$=2.464 fm *12* (= 2.468 fm with dispersion corrections) (1982Re12). $R_{r.m.s.}$=2.472 fm *15* (1980Ca07). This compares with $R_{r.m.s.}$=2.4829 fm *19* from muonic X-ray studies (1984Ru12).
4.44×10^3	2$^+$		T=0; $\Gamma_{\gamma 0}$=10.8×10^{-3} eV *6*
7.65×10^3	0$^+$		T=0
			The radiative width is Γ_π=62.3×10^{-6} eV *20* for pair decay (2010Ch17,2011Vo16). See discussion on the earlier value Γ_π=60 μeV *4* in (1980Aj01).
9.64×10^3	3$^-$		T=0; $\Gamma_{\gamma 0}$=3.1×10^{-4} eV *4*
10.84×10^3	1$^-$		T=0
11.83×10^3	2$^-$		T=0
12.71×10^3	1$^+$	14.6[‡] eV *26*	T=0; $\Gamma_{\gamma 0}$=0.32 eV *2*
14.08×10^3	4$^+$	≈0.3 MeV	T=0
15.11×10^3	1$^+$		T=1; $\Gamma_{\gamma 0}$=35.9 eV *6*
15.44×10^3 *4*		1.5 MeV *2*	
16.11×10^3	2$^+$		T=1; $\Gamma_{\gamma 0}$=0.35 eV *4* $\Gamma_{\gamma 0}$ from (1978Fr03), also see $\Gamma_{\gamma 0}$=0.83 eV *6* from (1969Gu05).
16.57×10^3	2$^-$		T=1; $\Gamma_{\gamma 0}$=48×10^{-3} eV *8*
17.6×10^3 *2*			$\Gamma_{calculated}$≈100 keV, see (1972An03).
18.20×10^3 *5*	(2$^-$)	0.30[#] MeV *10*	T=0
18.6×10^3 *1*	(3$^-$)		$\Gamma_{calculated}$≈300 keV, see (1972An03).
19.35×10^3 *10*	2$^-$	0.40[#] MeV *10*	T=1
19.59×10^3 *4*	4$^-$	550[#] keV *70*	T=1
20.0×10^3 *1*	(2$^+$)		
20.56×10^3 *5*	3$^+$	300[#] keV *50*	T=1
21.6×10^3 *1*	(3$^-$)		
22.0×10^3 *1*	(1$^-$)		$\Gamma_{calculated}$≈2-3 MeV, see (1972An03).
22.7×10^3 *1*	(2$^-$)	0.45[#] MeV *15*	T=1
23.8×10^3 *1*	(1$^-$)		
24.9×10^3			
25.5×10^3	(1$^-$)		
25.5×10^3	(3$^-$)		
26.4×10^3 *3*			
27.8×10^3 *2*			
30.2×10^3 *4*			
32.3×10^3 *3*			

[†] See references in (1975Aj02).
[‡] From (1974Ce01).
[#] From (1984Hi06).