^{11}B(p,α) 1990Aj01

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

1967Ma11: ^{11}B(p,α)2α E=6.4-7.9 MeV, measured $\sigma(E_p)$, $\sigma(E_\alpha,\theta)$.
1969Ga03: ^{11}B(p,α) E_p=38 MeV, measured $\sigma(E_\alpha,\theta)$. PWBA analysis.
1969Nu01: ^{11}B(p,α) E=7.3 MeV, measured $\sigma(\theta)$.
1971Ca16: ^{11}B(p,α) E=12,20,24,30 MeV, measured $\sigma(\theta)$. PWBA analysis.
1971Go20: ^{11}B(p,α) E=0.163 MeV, Measured $\sigma(E_{\alpha1},\theta_{\alpha1},\theta_{\alpha2})$. ^{12}C deduced resonances, level-width.
1971Ka21: ^{11}B(p,α) E=40 MeV, measured $\sigma(E_\alpha,\theta(\alpha))$.
1972De01,1972De02: ^{11}B(p,α)^{8}Be, E_p=45.0 MeV, measured $\sigma(\theta_{c.m.}=20°-160°)$. Finite-range DWBA.
1972Ge19: ^{11}B(p,α) E=1.39,2.00,2.64 MeV, measured $\sigma(E_\alpha,\theta(\alpha))$.
1972Hu04: ^{11}B(p,α) E=163 keV, measured α-α-coin spectra.
1974An19: ^{11}B(p,α) E=163 KeV, measured σ. ^{12}C levels deduced Γ_p, Γ_γ, S.
1975Ma49,1975Ma37: ^{11}B(p,α) E=1.8-3.0 MeV, measured $\sigma(E,\theta)$. ^{11}B(pol. p,α) E≈2.6 MeV, measured polarization. ^{12}C deduced resonances.
1975Va04: ^{11}B(p,α) E=7.5-10.5 MeV, measured $\sigma(E,E_\alpha)$, α-α-coin.
1976Gr22: ^{11}B(p,α), measured $\sigma(\theta)$. Deduced 3α reaction mechanism.
1976Ko18: ^{11}B(p,α) E=6 MeV, measured $\sigma(\alpha,\theta)$.
1977Av01: ^{11}B(p,α) E=660 MeV, measured absolute σ.
1977Bu07: ^{11}B(p,α) E=6.0-18.0 MeV, measured $\sigma(E,\theta)$. ^{12}C deduced isoscalar giant resonance.
1977Fu09: ^{11}B(p,α) E=6.5-7.3 MeV, measured $\sigma(E,E_\alpha,\theta)$.
1981Ov02: ^{11}B(p,α) E=33 MeV, measured $\sigma(E_\alpha)$.
1983Bo19: ^{11}B(p,α) E=4.5-7.55 MeV, measured $\sigma(E,\theta)$. Deduced reaction σ. ^{12}C deduced levels, J, π, reduced widths.
1983Bu06: ^{11}B(p,α) E=6-24 MeV, measured $\sigma(E,\theta)$. Deduced σ(E), reaction mechanism. DWBA analyses.
1985Pu03: ^{11}B(p,α) E=1.98,2.62,0.68 MeV, analyzed breakup $\sigma(\theta_{\alpha1}, \theta_{\alpha2},E_{\alpha1})$.
1987Be17: ^{11}B(p,3α) $E_{c.m.}$=22-1100 keV, measured E_α, I_α, $\sigma(E,\theta)$. ^{12}C deduced resonance, Γ.
1988Bo37: ^{11}B(p,$\alpha\gamma$) E≈2.7-3.8 MeV, measured $\sigma(\theta)$ vs E.
1988Ha04: ^{11}B(p,α) E=20-100 MeV, measured E_γ, I_γ, $\sigma(\theta)$, analyzing power vs θ. ^{12}C dedcued GDR, parameters, EWSR.
1989Lu05: ^{11}B(p,α) E=2.385-2.843 MeV, measured $\sigma(E_\alpha)$, σ(E).
1993An06,1999An35: ^{11}B(p,α) $E_{c.m.}$=17-134 keV, measured spectra, α yield.
1996Vo23: ^{11}B(p,α) E=150-800 keV, measured $\sigma(\theta)$.
1996Yu04: ^{11}B(p,α) E=0.165-2.58 MeV, analyzed α-spectra following ^{8}Be breakup. Deduced breakup σ.
1998Li51: ^{11}B(p,α) E=667,1370 keV, measured α spectra, $\sigma(E_\alpha,\theta)$, σ. Deduced sequential decay process features.
1998Ma54: ^{11}B(p,α) E=1700-2700 keV, measured $\sigma(\theta=165°)$.
2002Gr09: ^{11}B(p,α) E=100-200 keV, measured E_α.
2002Li29: ^{11}B(p,α) E=0.4-1.6 MeV, measured E_α, σ, $\sigma(\theta)$.
2008La18: ^{11}B(p,α), deduced S-factors.
2010Ko33: ^{11}B(p,α) E=2.2-4.2 MeV, measured proton spectrum, E_α, I_α. Deduced yields, $\sigma(\theta)$.
2010La11: ^{11}B(p,α) $E_{c.m.}$=0-0.6 MeV, deduced S-factor using Trojan Horse Method.
2011St01: XUNDL dataset compiled by TUNL, 2011. Beams of E_p=675 keV and 2.64 MeV, from the TUNL FN-Tandem facility impinged on a 56 $\mu g/cm^2$ enriched ^{11}B target populating ^{12}C*(16.576,18.38 MeV). Measured E_α, I_α, α-α coin. Emitted α-particles were detected in an array of 8 Si surface barrier detectors positioned at 20°−60°. Discussion of the reaction mechanism is given based on Monte Carlo simulations of the observations. Deduced implications on reaction model, astrophysical reaction rates.
2016La24: XUNDL dataset compiled by TUNL, 2016.
The ^{12}C*(16.11 MeV) 3α decay kinematics and decay mechanism was studied using E_p=167 to 170 keV beams from the Aarhus University Van de Graff accelerator. The beams impinged on 10-15 $\mu g/cm^2$ natural boron targets, populating the ^{12}C*(16.11 MeV) level. The full decay kinematics were detected using a set of 5 cm×5 cm double-sided Si strip detectors, that were placed in about ten different configurations throughout the measurement period. The branching ratio for α_0 decay is determined by analyzing the multiplicity 2 ($\Gamma_{\alpha0}/\Gamma$=0.054 *11*) and multiplicity 3 ($\Gamma_{\alpha0}/\Gamma$=0.051 *5*) events.

^{11}B(p,α) 1990Aj01 (continued)

^{12}C Levels

E(level)	J$^{\pi}$	$T_{1/2}$	Comments
16105.8 *7*	2$^+$	5.3 keV *2*	T=1; $\Gamma_{\gamma 0}$=0.58 eV; $\Gamma_{\alpha 0}$=290 eV *45*; Γ_p=21.7 eV *18* $\Gamma_{\gamma 1}$=12.6 eV *18*; $\Gamma_{\alpha 1}$=6.3 keV *5* E(level): E_{res}=148.3 keV *1* and $\Gamma_{c.m.}$=5.3 keV *2* (1987Be17) and E_{res}=149.8 keV *2* and $\Gamma_{c.m.}$=5.2 keV *+5−3* (1979Da03). Also see $\Gamma_{\alpha 0}/\Gamma$=0.051 *5* (2016La24).
16576	2$^-$	300 keV	T=1; $\Gamma_{\gamma 0}$<0.4 eV; $\Gamma_{\alpha 0}$<0.27 keV; Γ_p=150 keV $\Gamma_{\gamma 1}$=8.0 eV; $\Gamma_{\alpha 1}$=150 keV (1965Se06) Simulations indicate the primary α-particle is emitted with l=3 to ^{8}Be(2$^+$). Implications are discussed (2011St01).
17230	1$^-$	1150 keV	T=1; $\Gamma_{\gamma 0}$=44 eV; $\Gamma_{\alpha 0}$=10 keV; Γ_p=1 MeV $\Gamma_{\gamma 1}$=5. eV; $\Gamma_{\alpha 1}$=140 keV (1965Se06)
17.79×10^3	0$^+$	96 keV *5*	T=1; $\Gamma_{\alpha 0}$=4.6 keV; Γ_p=76 keV $\Gamma_{\alpha 1}$=11.4 keV (1965Se06)
18.38×10^3	3$^-$	≈310 keV	T=1; $\Gamma_{\gamma 0}$≈2×10^{-3} eV; $\Gamma_{\alpha 0}$=65 keV; Γ_p=68 keV $\Gamma_{\gamma 1}$=3.2 eV; $\Gamma_{\alpha 1}$=177 keV (1965Se06) Simulations indicate the primary α-particle is emitted with l=1, mostly to ^{8}Be(2$^+$), in agreement with prior studies (2011St01).
18.39×10^3	0$^-$	43 keV	$\Gamma_{\gamma 0}$<0.5 eV; $\Gamma_{\alpha 0}$<1 keV; Γ_p=33 keV $\Gamma_{\gamma 1}$<0.5 eV; $\Gamma_{\alpha 1}$<5 keV (1965Se06) $\Gamma_{p'}$≈9 keV (1965Se06).
18.71×10^3		100 keV	T=1; Γ_p<10 keV From σ_{res}(p,α_0)=3.4 mb (1965Se06).
18.81×10^3	2$^+$	100 keV	T=1; $\Gamma_{\gamma 0}$=0.4 eV; $\Gamma_{\alpha 0}$<0.2 keV; Γ_p=97 keV $\Gamma_{\gamma 1}$=2.0 eV; $\Gamma_{\alpha 1}$<1.5 keV (1965Se06) Γp′≈2.0 keV (1965Se06).
19.2×10^3	(1$^-$)	1100 keV	T=1; $\Gamma_{\gamma 0}$=25 eV; $\Gamma_{\alpha 0}$=50 keV; Γ_p=300 keV $\Gamma_{\gamma 1}$=10. eV; $\Gamma_{\alpha 1}$=200 keV; Γ_n=1.1 keV (1965Se06) Γp′≈400 keV (1965Se06).
19.39×10^3	(2$^+$)	1100 keV	T=0; $\Gamma_{\gamma 0}$<3 eV; $\Gamma_{\alpha 0}$=20 keV; Γ_p=450 keV $\Gamma_{\gamma 1}$=3. eV; $\Gamma_{\alpha 1}$=450 keV (1965Se06) Γp′≈50 keV (1965Se06).
20.47×10^3		180 keV	E(level): From (1963Sy01,1964Al20).
20.64×10^3	(3$^-$)	275 keV	T=1 E(level): From (1963Sy01,1964Al20).
21.31×10^3?		30 keV	E(level): From reference in (1980Aj01).
21.5×10^3			E(level): From (1964Al20).
22.1×10^3		500 keV	E(level): From (1964Al20).
22.6×10^3	(1$^-$)	3200 keV	T=1; $\Gamma_{\gamma 0}$>2500 eV E(level): From (1964Al20).
23.0×10^3			E(level): From (1975Va04).
23.6×10^3			E(level): From (1964Al20,1975Va04).
25.4×10^3			E(level): From (1975Va04).
26.72×10^3	(1$^-$)		E(level): From (1964Al20,1977Sn01).
27.9×10^3		≈6000 keV	E(level): From (1977Sn01).