

$^{12}\text{C}(\text{n,p})$:res **1968Ri02,1972Bo73**

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	J. H. Kelley, C. G. Sheu and J. E. Purcell		NDS 198,1 (2024)	1-Aug-2024

1953Ke50: $^{12}\text{C}(\text{n,p})$ E=90 MeV; measured different reaction channels using cloud-chamber and β -activity counting. Deduced σ , $\sigma(\text{E})$.

1958Kr65: $^{12}\text{C}(\text{n,p}_0)$ E=17.5 MeV; measured $\sigma=29.1$ mb 40.

1959Kr69: $^{12}\text{C}(\text{n,p})$ E=14.9-17.5 MeV; measured products; deduced σ , $\sigma(\text{E})$ using activation technique. No resonances reported. Deduced ^{12}B lifetime.

1968Ri02: $^{12}\text{C}(\text{n,p})$ E=14.5-22 MeV; measured $\sigma(\text{E})$. ^{13}C deduced resonances. Natural target.

1972Bo73: $^{12}\text{C}(\text{n,p})$ E=16-18 MeV; measured $\sigma(\text{E})$.

1975Mc19: $^{12}\text{C}(\text{n,p})$ E=56 MeV; measured $\sigma(\theta)$.

1979RoZV: $^{\text{nat}}\text{C}(\text{n,p})$ E=27.4,39.7,60.7 MeV; measured $\sigma(\text{E},\text{Ep},\theta\text{p})$.

1979SuZR: $^{12}\text{C}(\text{n,p})$ E=27.4, 39.7, 60.7 MeV; measured $\sigma(\text{E},\theta)$; deduced reaction mechanism.

1981NeZY: $^{12}\text{C}(\text{n,p})$ E=60 MeV; measured $\sigma(\text{Ep})$, $\sigma(\theta)$; deduced reaction mechanism.

1982De16: $^{12}\text{C}(\text{pol. n,p})$ E=18 MeV; measured ^{12}B β -decay asymmetry.

1983Su07: $^{12}\text{C}(\text{n,pX})$ E=27.4,39.7,60.7 MeV; measured $\sigma(\theta,\text{Ep})$.

1985Fr07: $^{12}\text{C}(\text{n,p})$ E=545 MeV; measured $\sigma(\theta,\text{Ep})$.

1987Fr16: $\text{C}(\text{n,p})$ E=300-580 MeV; measured light particle production $\sigma(\text{E},\theta)$ vs particle energy.

1988RaZX: $^{12}\text{C}(\text{n,p})$ E=30-150 MeV; measured $\sigma(\text{E})$.

2017PiZW: $^{12}\text{C}(\text{n,p}_0)$ E=18.9-20.7 MeV; measured $\sigma(\text{E})$.

2021Ku19: $^{12}\text{C}(\text{n,p}_0)$ E=16.25-21.75 MeV; measured $\sigma(\text{E})$.

Theory:

1974OI03: $^{12}\text{C}(\text{n,p})$; calculated σ . ^{13}C deduced resonances.

1972Ed01: $^{12}\text{C}(\text{n,p})$ E=14-15 MeV; compiled, studied cross sections.

1986Ko26: $^{12}\text{C}(\text{n,p})$ E=545 MeV; calculated decay probability distributions, $\sigma(\text{Ep},\theta)$.

1988Pe01: $^{12}\text{C}(\text{n,pX})$ E=27,40,61 MeV; calculated $\sigma(\theta,\text{Ep})$; deduced direct reaction component.

1989Br05: $^{12}\text{C}(\text{n,p})$ E=15-60 MeV; calculated $\sigma(\theta,\text{E})$.

2016Zu01: $^{12}\text{C}(\text{n,p})$ E<10 GeV; compiled and analyzed σ .

2020Pr08: $^{12}\text{C}(\text{n,p})$ E<20 MeV; calculated astrophysical reaction rates.

 ^{13}C Levels

E(level)	Comments
≈ 20500	E(level): (1968Ri02,1972Bo73: weak resonance).
≈ 22000	E(level): strong resonance with a peak cross section $\sigma=19$ mb (1968Ri02).