

$^{14}\text{N}(\text{n,d}),(\text{n,d}\gamma)$

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

[1952Li24](#): $^{14}\text{N}(\text{n,x})$ E=14.1 MeV; analyzed gas cloud chamber data.
[1957Ca07](#): $^{14}\text{N}(\text{n,d}_{0,2})$ E=14 MeV; measure the absolute differential cross sections at seven laboratory angles $\theta_{\text{lab}}=0^\circ-65^\circ$.
[1963Za01](#): $^{14}\text{N}(\text{n,d})$ E=14.1 MeV; measured angular distributions of deuterons corresponding to $^{13}\text{C}^*(0,3.09,3.68 \text{ MeV})$ states; $\theta=0^\circ$ to 150° .
[1967An08](#): $^{14}\text{N}(\text{n,d}_0)$ E=14.4 MeV; measured angular distributions for $\theta=20^\circ$ to 100° .
[1967Fe06](#): $^{14}\text{N}(\text{n,d}_{0,2})$ E=14.1,14.8 MeV; measured angular distributions for $\theta=0^\circ$ to 100° .
[1968Mi02](#): $^{14}\text{N}(\text{n,d}_0)$ E= 4.4 MeV; measured $\sigma(\text{Ed},\theta)$; deduced S. Natural targets.
[1971Ny03](#): $^{14}\text{N}(\text{n,x}\gamma)$ E=15 MeV; measured E_γ , $\sigma(E_\gamma)$; deduced levels. Ge(Li) detector.
[1979SuZR](#): $^{14}\text{N}(\text{n,d})$ E=27.4,39.7,60.7 MeV; measured $\sigma(E,\theta)$; deduced reaction mechanism. Hauser-Feshbach calculation.
[1981NeZY](#): $^{14}\text{N}(\text{n,d})$ E=60 MeV; measured $\sigma(\theta)$; deduced reaction mechanism. DWBA analysis, Goldhaber-Teller form factor.

Theory:

[1971Mi12](#): $^{14}\text{N}(\text{n,d})$; analyzed $\sigma(\theta)$; deduced S.
[1971Mi18](#): $^{14}\text{N}(\text{n,d})$; calculated $\sigma(\theta)$.

 ^{13}C Levels

E(level)	$J^\pi^\dagger$	$L^\dagger$	$S^\dagger$	Comments
0	$1/2^-$	1	0.92 9	$Q_0=-5320 \text{ keV}$ (1967Fe06 , 1968Mi02). E(level): Reported in (1957Ca07 , 1963Za01 , 1967An08 , 1967Fe06 , 1968Mi02). J^π : (1967Fe06); see also (1963Za01 : ($1/2^-$)). L: See (1963Za01 , 1967Fe06 , 1968Mi02). S: (1967Fe06). See also S=1.41 (1963Za01), 2 (1968Mi02). $\theta^2=0.065$ (1963Za01), 0.042 4 (1967Fe06). $C^2S=0.46$ 4 (1967Fe06).
3090				E(level): not observed.
3686	$3/2^-$	1	3.0	$Q=-9000 \text{ keV}$ (1967Fe06). E(level): See (1957Ca07 , 1963Za01 , 1967Fe06 , 1971Ny03). J^π : (1967Fe06); see also (1963Za01 : ($3/2^-$)). L: See (1963Za01 , 1967Fe06). S: (1963Za01). $\theta^2=0.12$ (1963Za01).
3853				E(level): (1971Ny03).

† From Butler theory and DWBA analyses in ([1963Za01](#),[1967Fe06](#)).

 $\gamma(^{13}\text{C})$

E_γ	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Comments
3686 3	3686	$3/2^-$	0	$1/2^-$	E_γ : (1971Ny03).
3853 3	3853		0	$1/2^-$	E_γ : (1971Ny03).

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Level Scheme

