

$^{40}\text{Ca}(\text{n,n}'),(\text{pol n,n}') \quad \text{1990OI02,1977Ba49,1986Ho05}$

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Jun Chen	NDS 140, 1 (2017)	30-Sep-2015

Also includes (n,n) and (pol n,n).

[1990OI02](#): (n,n') E=21.6 MeV. Measured $\sigma(\theta)$ for g.s., 3737 and 4491 levels. Deduced deformation parameters.

[1977Ba49](#): (n,n') E=11, 20 MeV. Measured $\sigma(\theta)$. DWBA analysis. Deduced deformation parameters.

[1986Ho05](#), [1986De17](#) (also [1987HoZU](#)): (n,n'), (pol n,n') E=11-17 MeV. Measured $\sigma(\theta)$, $\text{Ay}(\theta)$ for unresolved 3737+3904 levels.

Others:

[2011Mu10](#): (n,n) E=9.9-85 MeV. Measured σ .

[1989Ra06](#): (n,n) E=thermal. Measured bragg diffraction pattern, scattering lengths.

[1988Is03](#): (n,n') E=18-60 MeV. Measured $\sigma(\theta)$. Deduced optical-model parameters.

[1987AI03](#), [1987AI02](#) (also [1986AI2S](#)): (n,n') E=21.7, 25.5 MeV. Measured $\sigma(\theta)$. Deduced deformation parameters.

[1986Wi01](#): (n,n). Analyzed $\sigma(\theta)$.

[1982To11](#): (pol n,n) E=9.9, 11.9, 13.9 MeV. Measured $\sigma(\theta)$, $\text{Ay}(\theta)$. Deduced optical-model parameters.

[1981De21](#) (also [1980DeZO](#)): (n,n) E=30.3, 40 MeV. Measured $\sigma(\theta)$.

[1980Ba50](#): (n,n') E=2.7-5.5 MeV. Measured total $\sigma(E)$.

[1979Ja26](#): (n,n) E=2-3 MeV. Measured $\sigma(\theta)$.

[1977Ra16](#), [1977Ra12](#): (n,n) E=11, 20, 26 MeV. Measured $\sigma(\theta)$.

[1977Fe01](#): (n,n) E=11 MeV. Measured $\sigma(\theta)$.

[1973Ba69](#): (n,n') E=3.52 MeV. Measured lifetime of 3353 level.

[1973Wy03](#): (n,n'). Measured σ , deduced resonances.

[1964Mc20](#): (n,n') E=14.1 MeV. Measured $\sigma(\theta)$.

[1959KI46](#): (n,n'), pulsed neutrons from $^3\text{H}(\text{p,n})$ reaction. Measured lifetime for 3353 level by detecting time decay of $\gamma^\pm$ radiation.

This state was also excited in [1959KI46](#) using (p,p' γ).

 ^{40}Ca Levels

E(level) [†]	J π [‡]	T _{1/2}	L	β_L	Comments
0	0 ⁺				
3353	0 ⁺	2.21 ns 10			T _{1/2} : weighted average of 2.36 ns 14 (1959KI46) and 2.14 ns 10 (1973Ba69).
3737	3 ⁻		3	0.314 16	β_L ,L: from 1990OI02 , 5% uncertainty in β_L . Others: β_L =0.359 21 (1977Ba49), 0.33 (1987AI03).
3904	2 ⁺		2	0.096 10	β_L ,L: from 1977Ba49 . Other: β_L =0.10 (1987AI03).
4491	5 ⁻		5	0.229 12	β_L ,L: from 1990OI02 , 5% uncertainty in β_L . Others: β_L =0.26 4 (1977Ba49), 0.23 (1987AI03).

[†] Rounded-off energy from Adopted Levels.

[‡] From Adopted Levels.