

$^{16}\text{O}(^{13}\text{C}, ^{12}\text{C})$

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	C. G. Sheu, J. H. Kelley, J. Purcell	ENSDF	5-Aug-2021

[1975Se03](#): $^{16}\text{O}(^{13}\text{C}, ^{12}\text{C})$, E=3-16 MeV; measured $\sigma(E)$. ^{17}O levels deduced S_1S_2 .
[1976We21](#): E=36 MeV; measured $\sigma(\theta)$. ^{17}O levels deduced S. See also ([1976WeZE](#)).
[1977Du04](#): $^{16}\text{O}(^{13}\text{C}, ^{12}\text{C})$, E<Coulomb barrier; measured σ . ^{17}O deduced effective charges, radial integrals.
[1979Bo36](#): $^{16}\text{O}(^{13}\text{C}, ^{12}\text{C})$, E=24 MeV; measured $\sigma(\theta)$. ^{17}O levels deduced L, S. Enriched targets. Coupled-channel analysis.
[1979Ra10](#): $^{16}\text{O}(^{13}\text{C}, ^{12}\text{C})$, E=105 MeV; measured $\sigma(\theta)$. ^{17}O levels deduced S, parity.
[1980Si12](#): $^{13}\text{C}(^{16}\text{O}, ^{17}\text{O})$, E=30-60 MeV; calculated $\sigma(\theta)$. Coupled channel treatment, channel nonorthogonality.
[1983Os08](#): $^{16}\text{O}(^{13}\text{C}, ^{12}\text{C})$, E=36 MeV; analyzed $\sigma(\theta)$; deduced model parameters. ^{17}O levels deduced spectroscopic factors.
[1985Be37](#): $^{13}\text{C}(^{16}\text{O}, \text{X})$, E=20-70 MeV; measured γ -ray yields of reaction products; deduced resonant behavior, Landau-Zener effect. Hauser-Feshbach analysis.
[1986Pa10](#): $^{13}\text{C}(^{16}\text{O}, ^{12}\text{C})$, E(cm)=7.8-14.6 MeV; measured E_γ , I_γ , residual production $\sigma(E)$; deduced fusion $\sigma(E)$. Statistical model analysis. Ge(Li) detector, enriched target.
[2000Ik01](#): $^{16}\text{O}(^{13}\text{C}, ^{12}\text{C})$, E=50 MeV; measured particle spectra, $\sigma(\theta)$.

 ^{17}O Levels

<u>E(level)[†]</u>	<u>J^π</u>	<u>L[‡]</u>	<u>S₁S₂[#]</u>	Comments
0	5/2 ⁺	3	0.60	S ₁ S ₂ : 1p _{1/2} →1d _{5/2} neutron transfer configuration (1979Bo36 : LOLA). See also (1979Bo36 : S ₁ S ₂ =0.49 (I _γ normalization(CRC))). See also (2000Ik01 : S=0.900 (DWBA), 0.900 (α)).
871	1/2 ⁺	1	0.72	E(level): Well described as the coupling of a 2s _{1/2} neutron to the ^{16}O core (1968Na06). L: See also (1976We21 , 1983Os08). S ₁ S ₂ : 1p _{1/2} →2s _{1/2} neutron transfer configuration; extracted using a Coulomb wave Born approximation (1975Se03); and compared with the theoretical value 0.61 (1968Na06 : using S ₁ =0.61 for the $^{13}\text{C}_{\text{g.s.}}$). See also (1979Bo36 : S ₁ S ₂ =0.50 (LOLA), 0.51 (I _γ normalization(CRC))). See also (1983Os08 : S=0.6138), (2000Ik01 : S=0.800 (DWBA), 0.750 (α)). C ² S=0.49; Q(β ⁻)value=-0.804 MeV (1976We21).

[†] From Adopted Levels. Also observed in ([1979Ra10](#), [2000Ik01](#)). See also ([2000Ik01](#)) for higher excited states observed.

[‡] L transfer from ([1979Bo36](#)).

[#] Products of the neutron spectroscopic factors in the initial and final states.

 $\gamma(^{17}\text{O})$

<u>E_γ</u>	<u>E_i(level)</u>	<u>J_i^π</u>	<u>E_f</u>	<u>J_f^π</u>	Comments
870.8	871	1/2 ⁺	0	5/2 ⁺	E _γ : From (1985Be37). See also (1977Du04 , 1976We21).

$^{16}\text{O}(^{13}\text{C},^{12}\text{C})$

Level Scheme

