^{16}O(n,α) 1963Da12

History

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

1963Da12: ^{16}O(n,α), E=5.0-8.8 MeV; the excitation function showed 21 resonances corresponding to excited states in ^{17}O.
1968Le11: ^{16}O(n,α), E=14.9 MeV measured σ(Eα,θ). Natural targets.
1969AjZZ: ^{16}O(n,α), E=14 MeV; measured σ(Eα,θ).
1970Aj03: ^{16}O(n,α), E=14 MeV; measured σ(Eα,θ).
1970Br17: ^{16}O(n,α), E=13.9 MeV; measured σ(E$_n$; θ=0°).
1972Br50: ^{16}O(n,α), E=13.9 MeV; measured σ(Eα).
1972Ki12: ^{16}O(n,α), E=4.9 MeV; measured σ(θ).
1973Bo26: ^{16}O(n,α), E=14.1 MeV; measured σ(Eα,θ).
1979SuZR: ^{16}O(n,p),(n,d),(n,t),(n,^{3}He),(n,α), E=27.4,39.7,60.7 MeV; measured σ(E,θ); deduced reaction mechanism. Hauser-Feshbach calculation.
2002NeZY: ^{16}O(n,n′),(n,2n),(n,p),(n,d),(n,α),(n,nα), E=4-200 MeV; measured Eγ, Iγ, σ(θ), excitation functions. Comparison with previous results.
2008GiZY: ^{16}O(n,α), E=3.95-9 MeV; measured Eα, Iα; deduced σ(E*). Compared to other data, ENDF/B-VI.8, ENDF/B-VII.0.
2011KhZW: ^{16}O(n,α), E=1.7-7 MeV; measured Eα, Iα using digital spectrometer; deduced σ to low-lying states. Comparison with other data, O and N reactions also to ENDF/B-VII.
2012Kh05: ^{16}O(n,α), E<7.5 MeV; measured reaction products, Eα, Iα; deduced σ. Comparison with available data, ENDF/B-VII and JENDL libraries.
2012KhZZ: ^{16}O(n,α), E=1.7-7 MeV; re-evaluated σ to ground state at neutron energies between 4 and 6.2 MeV. Compared with other data, ENDF/B-VII, JENDL3.
2018Sc04: ^{16}O(n,n),(n,n′),(n,α), E=1-10 MeV; measured reaction products, E$_n$, I$_n$; deduced light and heavy water leakage neutron flux density, neutron fluences for the light and heavy water spheres. Comparison with calculations using ENDF/B-VII.0, ENDF/B-VIII.b4 and JENDL-4 nuclear data libraries.

Theory:
1972JoZV: ^{16}O(n,n),(n,α), E=600-930, 1390-1640 keV; measured σ(nT). ^{17}O deduced resonances, level-width.
1973Jo01: ^{16}O(n,X),(n,α), E<5.8 MeV; analyzed σ(E). ^{17}O deduced resonances, J, π, level-width, S.
1986Sh33: ^{16}O(n,n),(n,n′),(n,α), E=threshold−20 MeV; compiled, evaluated neutron induced reaction data. R-matrix theory, direct, preequilibrium processes.
1986Sh33: ^{16}O(n,n),(n,n′),(n,α), E=threshold−20 MeV; compiled, evaluated neutron induced reaction data. R-matrix theory, direct, preequilibrium processes.
1989Br05: ^{16}O(n,α), E=15-60 MeV; calculated σ(θ1,E1).
1995Ch84: ^{16}O(n,n),(n,α), E=6.2-10.5 MeV; analyzed σ, σ(θ); deduced R-matrix parameters.
2008Su21: ^{16}O(n,α), E<30 MeV; calculated kerma coefficients. Comparison with experimental data.
2008VaZT: ^{16}O(n,α), E≈3-10 MeV; calculated σ; evaluated σ. JENDL-3.3, ENDF/B-VI.8.
2008WaZS: ^{16}O(n,α), E=96 MeV; calculated dσ; QMD plus generalized evaporation model; compared to data.
2014Ku13: ^{16}O(n,α), E=0.5-4.7 MeV; calculated σ using multi-channel R-matrix with care for covariances; deduced resonances. Compared to ENDF/B-VII.1 and Harisopulos data.
2016LeZV: ^{16}O(n,α), E=3.3-7.0 MeV; calculated σ, σ(θ) to specified resonances (partially by G. Hale) using R-matrix.
2017HaZY: ^{16}O(n,n),(n,x),(n,α), E=0-7 MeV; calculated total σ, σ(θ); compared with data and ENDF VIII.0-CIELO.
2017Ka02: ^{16}O(n,α), E=1-100 MeV; calculated preformation probability vs fragment mass using collective clustering approach of DCM (Dynamical Cluster-decay Model). Compared with available data.

^{17}O Levels

E(level)[†]	Γ[‡]	E$_{res}$ (keV)[‡]
8896	≈91 keV	5050
8962	≈30 keV	5120
9150	≈24 keV	5320
9197	52 keV	5370

Continued on next page (footnotes at end of table)

^{16}O(n,α) 1963Da12 (continued)

^{17}O Levels (continued)

E(level)†	Γ‡	E_{res} (keV)‡	E(level)†	Γ‡	E_{res} (keV)‡
9489	56 keV	5680	11032	≈57 keV	7320
9715	51 keV	5920	11287	≈78 keV	7590
9865	28 keV	6080	11475?		(7790)
9997	143 keV	6220	11578	≈126 keV	7900
10176	81 keV	6410	11729?		(8060)
10345	148 keV	6590	11880	≈125 keV	8220
10552	79 keV	6810	12030	≈125 keV	8380
10769	69 keV	7040	12294		8660
10920	79 keV	7200			

† Calculated using E_{res} given in (1963Da12) and masses given in (2017Wa10).
‡ From (1963Da12).