

⁹⁰Zr(d,α),(pol d,α) 1973Da10,1987Ha25

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	E. A. McCutchan and A. A. Sonzogni		NDS 115, 135 (2014)	1-Nov-2013

1973Da10: E=17 MeV. Measured $\sigma(\theta)$ using Enge split-pole spectrograph and nuclear emulsions (FWHM=11-12 keV); DWBA analysis.

1987Ha25: polarized d's. E=22 MeV. Measured $\sigma(\theta)$ using magnetic spectrograph and Si position-sensitive detector (FWHM=80 keV); measured vector and tensor analyzing powers.

Other: **1971Pa26.**

⁸⁸Y Levels

E(level) [†]	J π [‡]	L [#]	ϵ [@]	Comments
0	4 ⁻	3	2	$d\sigma/d\Omega_{\max}=195 \mu\text{b}/\text{sr}$ (1973Da10).
233 2	5 ⁻	5	0.8	$d\sigma/d\Omega_{\max}=45 \mu\text{b}/\text{sr}$ (1973Da10).
393 2		0+2	5	$d\sigma/d\Omega_{\max}=307 \mu\text{b}/\text{sr}$ (1973Da10).
706 ^{&} 3		1	2	$d\sigma/d\Omega_{\max}=40 \mu\text{b}/\text{sr}$ (1973Da10).
707 ^{&} 3		2	0.5	$d\sigma/d\Omega_{\max}=98 \mu\text{b}/\text{sr}$ (1973Da10).
844 2				$d\sigma/d\Omega_{\max}=16 \mu\text{b}/\text{sr}$ (1973Da10).
1087 3				$d\sigma/d\Omega_{\max}=8 \mu\text{b}/\text{sr}$ (1973Da10).
1127 3				$d\sigma/d\Omega_{\max}=5 \mu\text{b}/\text{sr}$ (1973Da10).
1264 6		(3)	2	$d\sigma/d\Omega_{\max}=30 \mu\text{b}/\text{sr}$ (1973Da10).
1274 3		2+0	0.9	$d\sigma/d\Omega_{\max}=70 \mu\text{b}/\text{sr}$ (1973Da10).
1315 6		5	0.7	$d\sigma/d\Omega_{\max}=174 \mu\text{b}/\text{sr}$ for combined 1315- and 1325-keV levels (1973Da10).
1325 6				$d\sigma/d\Omega_{\max}=174 \mu\text{b}/\text{sr}$ for combined 1315- and 1325-keV levels (1973Da10).
1460 3		(7)	0.7	$d\sigma/d\Omega_{\max}=21 \mu\text{b}/\text{sr}$ (1973Da10).
1475 4		3	0.5	$d\sigma/d\Omega_{\max}=50 \mu\text{b}/\text{sr}$ (1973Da10).
1562 4		0+2 ^a	≈ 1	$d\sigma/d\Omega_{\max}=111 \mu\text{b}/\text{sr}$ for combined 1562- and 1573-keV levels (1973Da10).
1573 4		0+2 ^a	≈ 1	$d\sigma/d\Omega_{\max}=111 \mu\text{b}/\text{sr}$ for combined 1562- and 1573-keV levels (1973Da10).
1598 4		3	2.3	$d\sigma/d\Omega_{\max}=35 \mu\text{b}/\text{sr}$ (1973Da10).
1702 4		4	1.2	$d\sigma/d\Omega_{\max}=64 \mu\text{b}/\text{sr}$ (1973Da10).
1735 4				$d\sigma/d\Omega_{\max}=10 \mu\text{b}/\text{sr}$ (1973Da10).
1762 4		5	2	$d\sigma/d\Omega_{\max}=30 \mu\text{b}/\text{sr}$ (1973Da10).
1827 ^b 4		3	1.0	$d\sigma/d\Omega_{\max}=122 \mu\text{b}/\text{sr}$ (1973Da10).
1900 4				$d\sigma/d\Omega_{\max}=20 \mu\text{b}/\text{sr}$ (1973Da10).
1948 4		2	2.4	$d\sigma/d\Omega_{\max}=50 \mu\text{b}/\text{sr}$ (1973Da10).
1971 6				$d\sigma/d\Omega_{\max}=15 \mu\text{b}/\text{sr}$ (1973Da10).
2056 ^b 4			(0.5)	$d\sigma/d\Omega_{\max}=10 \mu\text{b}/\text{sr}$ (1973Da10).
2127 ^b 4		(4)	(0.7)	$d\sigma/d\Omega_{\max}=67 \mu\text{b}/\text{sr}$ (1973Da10).

[†] Weighted averages of energies from (d,α), (³He,α) and (d,t) (**1973Da10**). ΔE reported to vary from 1 keV for the lowest to 4 keV for the highest energies. Individual uncertainties assigned by the evaluators. For some weak lines **1973Da10** assigned $\Delta E=6$ keV.

[‡] From analyzing powers in (pol d, α) (**1987Ha25**).

[#] From DWBA (**1973Da10**).

[@] Enhancement factor ϵ defined by $\sigma(\text{exp})=\epsilon\times\sigma(\text{DWBA})$ from **1973Da10**. Uncertainty in absolute cross sections is 20%.

[&] Energetically not resolved but L=1+2 indicates doublet.

^a For the unresolved doublet.

^b Broadened peak indicates unresolved doublet.