

${}^{91}\text{Zr}(\text{p,n})$ 1970Ki01,1970Ja26

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Coral M. Baglin	NDS 114, 1293 (2013)	1-Sep-2013

Others: 1971Ki06, 1971Ki07.

1970Ki01, 1971Ki06, 1971Ki07: E=4.0-5.4 MeV; >92% ${}^{91}\text{Zr}$ target; tof, 1.5 ns resolution. Measured neutron spectra for thick and thin targets (1970Ki01). Located 2^+ 4154 IAR (from $\sigma(\text{E}(\text{p}))$) for E(p)=4.10-4.21 MeV; measured neutron spectra and $\sigma(\theta)$ for neutron groups populating the 1188 and 1313 levels, both on and off resonance (1971Ki06). Determined A_2 for $\sigma(\theta)$ measured at the 2^+ IAR for neutron groups feeding the 105, 1187, 1313 levels (1971Ki07). IAR analysis.

1970Ja26: 3.9 MeV – 5.4 MeV; enriched target; tof, 1.2 ns resolution for E(n)=2 MeV, BF_3 counters; measured $\sigma(\text{E}(\text{p}))$, $\sigma(\theta)$, ($\theta=0^\circ-145^\circ$), partial cross sections. See 1970Ja26 for the results of these measurements. Hauser-Feshbach analysis. IAR analysis.

 ${}^{91}\text{Nb}$ Levels

E(level) [†]	J^π [‡]	E(level) [†]	J^π [‡]	E(level) [†]	J^π [‡]
0		1843 3		2414 10	1/2,11/2,13/2 ⁺
105 4	<i>a</i>	1964 5		2532 5	
1187 3	5/2 ⁻ & <i>a</i>	1985 15		2581 5	5/2 ⁺ ,7/2 ⁺
1313 3	3/2 ⁻ & <i>a</i>	2121 4	7/2 ⁻	2613 10	7/2 ⁻ @
1580 4	7/2 ⁺	2292 7	11/2 ⁻ ,13/2,15/2 ⁺	2632 10	
1610 4		2329 8	5/2 ⁻	2792 8	5/2 ⁺ ,7/2 ⁺
1634 4	9/2 ⁺	2346 10	3/2 ⁻		
1788 3	9/2 ⁻	2391 5	5/2 ⁺ #		

[†] Weighted average if seen by both 1970Ki01 and 1970Ja26.

[‡] From Hauser-Feshbach analysis (1970Ja26), if not indicated otherwise.

From IAR analysis (1970Ja26).

@ IAR: 1/2⁻,7/2⁻. Hauser-Feshbach: 3/2⁺,5/2⁻,7/2⁻,9/2⁺ (1970Ja26).

& From IAR analysis (1971Ki06).

^a $A_2=+0.30$ 3, 0.00 3, -0.08 3 for $\sigma(\theta)$ for neutrons feeding the 105, 1187, 1313 levels, respectively (1971Ki07); expected A_2 is >0 for $J^\pi=1/2^-$, 0.0 for $J^\pi=3/2^-$, <0 for $J^\pi=5/2^-$.