

$^{101}\text{Ru}(p,d)$ 1980Pe12

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh and Jun Chen		NDS 172, 1 (2021)	31-Jan-2021

$J^\pi(^{101}\text{Ru g.s.})=5/2^+$.

1980Pe12: E=22.9 MeV proton beam was produced from the University of Colorado AVF cyclotron. Target was 99.7% enriched ^{101}Ru metal sputtered onto a carbon backing. Reaction products were momentum-analyzed with a beam swinger spectrometer (FWHM=22 keV) and detected with a position sensitive helical-cathode proportional counter and a stopping scintillator behind it. Measured $\sigma(\theta)$. Deduced levels, L-transfers, spectroscopic factors from DWBA analysis. Absolute cross sections accurate to $\approx 15\%$. All data are from **1980Pe12**, unless otherwise noted.

 ^{100}Ru Levels

E(level) [†]	L&	C ² S ^{&a}	E(level) [†]	L&	C ² S ^{&a}	E(level) [†]	L&	C ² S ^{&a}
0	2	0.40	2560 <i>10</i>	2+0	0.075,0.0085	3132 [#] <i>10</i>		
540 [‡]	2	0.34	2610 [#] <i>10</i>			3178 <i>10</i>	0	0.0020
1130 [‡]	2	0.007	2634 <i>10</i>	2	0.14	3268 <i>10</i>	2	0.025
1226 [‡]	4	0.067	2695 <i>10</i>	4	0.075	3278 [#] <i>10</i>		
1362 [‡]	0	0.032	2761 <i>10</i>	2+0	0.012,0.0019	3315 <i>10</i>	2+0	0.037,0.0070
1741?		<0.0002	2783 <i>10</i>	2+0	0.025,0.0064	3403 <i>10</i>	0	0.0017
1887 [@] <i>5</i>	2	0.066	2816 <i>10</i>	2+0	0.029,0.0094	3441 <i>10</i>	0	0.0089
2098 <i>10</i>	2	0.030	2865 <i>10</i>	2+0	0.012,0.0020	3517 <i>10</i>	2+0	0.020,0.0050
2131 <i>10</i>	0(+2)	0.006,0.01	2890 <i>10</i>	2+0	0.024,0.0042	3585 <i>10</i>	2+0	0.002,0.0017
2194 [#] <i>10</i>			2926 <i>10</i>	2	0.014	3608 <i>10</i>	2+0	0.001,0.0023
2268 <i>5</i>	2+0	0.12,0.10	2971 <i>10</i>	2	0.018	3693 <i>10</i>	2	0.016
2394 <i>5</i>	2	0.37	3051 <i>10</i>	2+0	0.025,0.008	3774 <i>10</i>	2	0.012
2438 <i>5</i>	2+0	0.024,0.019	3080 <i>10</i>	2+0	0.023,0.0090	3860 <i>10</i>	2+0	0.006,0.0014
2515 <i>10</i>	2+4	0.020,0.083	3124 <i>10</i>	2+0	0.033,0.0072			

[†] Spectra calibrated with known peaks from ^{93}Nb and ^{61}Ni targets. The energies of the peaks below 1800 related to respective values known from γ -ray work on levels in ^{100}Ru . Uncertainty=5 keV for low excitations and 10 keV for high energy and weak excitations.

[‡] Rounded value from the Adopted Levels.

[#] Weakly populated level.

[@] Probably a doublet.

[&] From comparison of experimental and DWBA calculations of $\sigma(\theta)$ distributions (**1980Pe12**).

^a C²S values from the following equation: $C^2S=(2J+1)\times N\times(d\sigma/d\Omega)\text{expt}/[(d\sigma/d\Omega)(\text{DWBA})]$, where normalization factor $N=2.24$, J =spin of the transferred nucleon. $J=5/2$ assumed for $L(n)=2$ and $9/2$ assumed for $L(n)=4$.