

⁶⁴Ni(p,p') 1967Te02,1963Di11,1969Be20

Type	Author	History	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh and Jun Chen		NDS 178,41 (2021).	12-Nov-2021

Includes (p,p) and (pol p,p').

1967Te02: E=11,11.5 MeV beams from Aldermaston. Scattered protons were momentum-analyzed with a magnetic spectrograph (FWHM=11 keV). Measured E(p). Deduced levels.

1963Di11, 1963Di15: E=11 MeV beam from the ORNL tandem. Scattered protons were detected with surface-barrier detectors (FWHM=40 keV). Measured $\sigma(\theta)$. Deduced levels, J, π , deformation parameters from analysis with CCBA calculations.

1969Be20: E=12 MeV proton beam from the CEN Saclay-SPNBE tandem. Scattered protons were detected with a surface-barrier detector (FWHM≈20 keV). Measured $E\pi$, $\sigma(\theta)$. Deduced levels, J, L-transfers from DWBA analysis.

1989Va02,1989Wa05: (pol p,p') E=20.4, 24.6 MeV. Measured $\sigma(\theta)$ and $Ay(\theta)$. Deduced deformation parameters.

Others mainly dealing with optical model parameters for (p,p) and (p,p') scattering through g.s. and first 2⁺ state:

Experimental: [2004Ko34](#), [1985Se15](#), [1983Ma09](#), [1983HeZZ](#), [1982Sa19](#), [1981Sa06](#), [1981PI07](#), [1981No07](#), [1981Be08](#), [1980Fa07](#), [1978Ho18](#), [1978Be40](#), [1978Al31](#), [1977PI03](#), [1977Ch29](#), [1977Al10](#), [1975RaYL](#), [1975Gu09](#), [1974VI02](#), [1974TyZZ](#), [1974Gu03](#), [1974Co06](#), [1973Co01](#), [1972Ra23](#), [1972Ma18](#), [1972De32](#), [1971Sh24](#), [1971Mo16](#), [1971Gr06](#), [1971Be06](#), [1970Pr03](#), [1970Pe09](#), [1970Li21](#), [1970Br33](#), [1970An32](#), [1969Ko07](#), [1969Gu07](#), [1969Gr17](#), [1969BrZY](#), [1969An34](#), [1968An22](#), [1968Pe20](#), [1967Ko04](#), [1967Gl06](#), [1966Mc10](#), [1966Ha39](#), [1966Ga14](#), [1964Ry01](#), [1964Be07](#), [1963Go24](#), [1963Be13](#), [1963Be07](#), [1961Va29](#).

Theoretical or analysis of data: [2002Sa49](#), [1997Ah08](#), [1988Al14](#), [1987Za03](#), [1987Va01](#), [1986Va05](#), [1985Ti06](#), [1984Va02](#), [1983Za09](#), [1979St12](#), [1979Ra14](#), [1978Le06](#), [1978Au11](#), [1977Ro34](#), [1977Ro33](#), [1976An21](#), [1973Te07](#).

Review paper: [1978Ch28](#).

A 1790 group reported by [1963Be13](#) is not confirmed by any other study.

⁶⁴Ni Levels

E(level) [†]	L	Comments
0		
1344 7	2 [‡]	$\beta_2=0.206$ 21 (1989Va02), 0.22 (1976An21), 0.15 1 (1969An34), 0.22 (1969Be20), 0.231 (1963Di11).
2275 7	(0) [#]	$\beta_0=0.170$ (1963Di11).
2477? 7		
2608 7	4 [‡]	$\beta_4=0.09$ (1969Be20), 0.231 (1963Di11).
2865 7	(2) [#]	$\beta_2=0.189$ (1963Di11).
2971 & 7		
3028 7		
3165 7	4 [@]	$\beta_4=0.11$ (1969Be20).
3273 7		
3393 7		
3459 7		
3483 7		
3560 7	3 [@]	$\beta_3=0.203$ 20 (1989Va02), 0.23 (1969Be20).
3647 7		
3748 & 7		
3795 7		
3808 7		
3849 7		
3965 7		
4084 7		
4137 7		
4174 7		
4210 7		
4247 7		
4264 7		
4285 7		
4346 7		

Continued on next page (footnotes at end of table)

$^{64}\text{Ni}(\text{p,p}')$ **1967Te02,1963Di11,1969Be20** (continued) ^{64}Ni Levels (continued)

<u>E(level)[†]</u>	<u>E(level)[†]</u>	<u>E(level)[†]</u>	<u>E(level)[†]</u>
4369 7	4692 7	5107 10	5414 10
4397 7	4720 7	5123 10	5441 10
4412 ^{&} 7	4741 7	5152 10	5480 10
4453 7	4762 ^{&} 7	5174 10	5507 10
4475 7	4796 7	5188 10	5537 10
4494 7	4894 7	5217 10	5770 ^b
4520 7	4928 7	5229 10	5870 ^b
4548 7	4966 7	5264 10	5910 ^b
4567 7	4991 7	5285 10	6070 ^b
4584 7	5009 10	5332 10	6740 ^b
4614 7	5028 10	5351 10	7130 ^b
4632 ^a 7	5065 10	5370 10	
4670 7	5087 10	5383 10	

[†] From 1967Te02.

[‡] From $\sigma(\theta)$ data of 1969Be20 and 1963Di11.

From 1963Di11 only.

@ From 1969Be20 only.

& Doublet.

^a Possible doublet.

^b Reported by 1969Be20 only. Estimated uncertainty ≈ 10 keV (evaluator).