^{41}K(p,n),(p,p):resonances 1967An10,1967Lu08,1970De11

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Jun Chen[#] and Balraj Singh	NDS 135, 1 (2016)	31-May-2016

Includes resonances in ^{42}Ca from ^{41}K(p,p) (1970De11).
1967An10: E=1.86-2.17 MeV. A large number of resonances reported.
1967Lu08: E=1.40-1.74 MeV.
1970De11: E=1.35-1.96 MeV protons from the Utrecht 3 MV Van de Graaff accelerator. 99.2% enriched 41K target. A BF_3 counter and Si detectors. Measured $\sigma(E_p,\theta)$. Deduced resonance energies, strengths, widths for a group of 14 resonances. Also deduced alpha width, see ^{41}K(p,α) dataset.
S_n and S_p are neutron and proton resonance strengths, respectively.

^{42}Ca Levels

Resonance strength $S=(2J+1)\Gamma_p\Gamma_l/\Gamma$ from 1970De11. Γ_l is Γ_n or Γ_p.

E(level)[†]	Jπ[‡]	E(p)(lab)	E(level)[†]	Jπ[‡]	E(p)(lab)	E(level)[†]	Jπ[‡]	E(p)(lab)
11612.5[#] *15*	1⁻	1368.4 *15*	11865		1627	12175.7[j] *15*	1⁻	1945.3 *15*
11639.4[@] *15*	1⁻	1395.9 *15*	11868		1630	12180		1950
11645		1402	11871		1633	12182.8[k] *15*	1⁻	1952.6 *15*
11654		1411	11878		1640	12185		1955
11658		1415	11881		1643	12189		1959
11662		1419	11885		1648	12198		1968
11668		1425	11887		1650	12201		1971
11674		1431	11895		1658	12205		1975
11688		1446	11901		1664	12208		1978
11693		1451	11907		1670	12214		1985
11709		1467	11911		1674	12216		1987
11714		1472	11916		1679	12226		1997
11719		1477	11921		1684	12230		2001
11727		1486	11925		1689	12236		2007
11732		1491	11929		1693	12238		2009
11738		1497	11933		1697	12255		2027
11743		1502	11937		1701	12263		2035
11751		1510	11948		1712	12270		2042
11755		1514	11953		1717	12278		2050
11760		1519	11964		1728	12279		2051
11763		1523	11967		1732	12286		2058
11768		1528	11970.2[c] *15*	1⁻	1734.8 *15*	12293		2065
11775		1535	11980.3[d] *15*	1⁻	1745.1 *15*	12297		2070
11779		1539	12101.3[e] *15*	1⁻	1869.1 *15*	12302		2075
11783		1543	12109		1877	12305		2078
11787		1547	12112.2[f] *15*	1⁻	1880.3 *15*	12309		2082
11798.3[&] *15*	(1⁻,2⁺)	1558.7 *15*	12114		1882	12311		2084
11805.4[a] *15*	(1⁻,2⁺)	1566.0 *15*	12122		1890	12314		2087
11811.1[b] *15*	(1⁻,2⁺)	1571.8 *15*	12126		1894	12322		2095
11814		1575	12132		1901	12328		2101
11823		1584	12142		1911	12330		2103
11829		1590	12144		1913	12336		2110
11833		1594	12152		1921	12340		2114
11836		1597	12158.6[g] *15*	1⁻	1927.8 *15*	12344		2118
11840		1601	12160		1929	12348		2122
11850		1612	12163.1[h] *15*	1⁻	1932.4 *15*	12351		2125
11855		1617	12168[i] *3*	(1⁻)	1937 *3*	12362		2136
11858		1620	12172		1942	12369		2143

Continued on next page (footnotes at end of table)

^{41}K(p,n),(p,p):resonances 1967An10,1967Lu08,1970De11 (continued)

^{42}Ca Levels (continued)

E(level)[†]	E(p)(lab)
12374	2148
12381	2156
12386	2161

[†] Excitation energy=S(p)+E(p)(C.M.) with E(p)(C.M.) deduced from E(p)(lab) and S(p)=10276.71 *67* (2012Wa38). E(p)(lab) below 1.8 MeV are from 1967Lu08, and above 1.8 MeV from 1967Lu08; values with uncertainties are from 1970De11.
[‡] From fits to experimental cross-section data (1970De11).
[#] S_n<5 eV, S_p=465 eV *240*, Γ_n<3 eV, Γ_p=160 eV *50*, for J=1 (1970De11). No neutron emission observed.
[@] S_n<5 eV, S_p=48 eV *30*, Γ_n<4 eV, Γ_p=25 eV *10*, for J=1 (1970De11). No neutron emission observed.
[&] E(p)(lab)=1557 (1967Lu08). S_n<5 eV, S_p=400 eV *200*, Γ_n<4 eV for J=1 or 2; Γ_p=200 eV *70* for J=1, 120 eV *40* for J=2 (1970De11).
[a] E(p)(lab)=1566 (1967Lu08). S_n=65 eV *33*, S_p=350 eV *175*, Γ_n=26 eV *15*, Γ_p=140 eV *60* for J=1; Γ_n=16 eV *10*, Γ_p=85 eV *40* for J=2 (1970De11).
[b] E(p)(lab)=1570 (1967Lu08). S_n=30 eV *15*, S_p=250 eV *125*, Γ_n=11 eV *7*, Γ_p=95 eV *50* for J=1; Γ_n=6 eV *4*, Γ_p=56 eV *30* for J=2 (1970De11).
[c] S_n<5 eV, S_p=100 eV *50*, Γ_n<9, Γ_p=120 eV *30* for J=1 (1970De11).
[d] E(p)(lab)=1744 (1967Lu08). S_n=40 eV *20*, S_p=380 eV *140*, Γ_n=21 eV *10*, Γ_p=200 eV *50* for J=1 (1970De11).
[e] E(p)(lab)=1867 (1967An10). S_n=200 eV *100*, S_p=1700 eV *850*, Γ_n=78 eV *60*, Γ_p=660 eV *290* for J=1 (1970De11).
[f] E(p)(lab)=1879 (1967An10). S_n=150 eV *75*, S_p=2030 eV *400*, Γ_n=55 eV *30*, Γ_p=740 eV *80*, for J=1 (1970De11).
[g] E(p)(lab)=1927 (1967An10). S_n<5 eV, S_p=250 eV *125*, Γ_n<5 eV, Γ_p=130 eV *50*, for J=1 (1970De11).
[h] E(p)(lab)=1934 (1967An10). S_n=15 eV *8*, S_p=500 eV *250*, Γ_n=7 eV *5*, Γ_p=250 eV *90*, for J=1 (1970De11).
[i] E(p)(lab)=1937 (1967An10). S_n=15 eV *8*, S_p=300 eV *150*, Γ_n<10 eV, Γ_p=100 eV *50*, for J=1 (1970De11).
[j] S_n=55 eV *28*, S_p=1940 eV *450*, Γ_n=21 eV *10*, Γ_p=740 eV *100*, for J=1 (1970De11).
[k] S_n<5 eV, S_p=1210 eV *250*, Γ_n<4 eV, Γ_p=440 eV *50* for J=1 (1970De11).