^{41}K(p,α):resonances 1970De10

History

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

1970De10: E=1170-2100 keV proton beam was produced from the Utrecht 3 MV Van de Graaff accelerator. A 99.2% enriched ^{41}K target on carbon backing. Emitted α-particles were detected with Si detectors. Measured $\sigma(E_p,\theta)$. Deduced resonance energies, J^π.

1970De11: ^{41}K(p,n) and ^{41}K(p,p) resonances, E(p)=1350-1960 keV. Measured $\sigma(\theta)$. Deduced IAR strengths. 14 resonances reported.

1967An10: 51 resonances reported from E(p)(lab)=1867 to 2172.

1967Lu08: 48 resonances reported from E(p)(lab)=1402 to 1744.

1960Cl02: ^{41}K(p,α) E=1-3 MeV.

1950Ri59: ^{41}K(p,n) E=1.3 to 3.5 MeV. Eight resonance peaks reported at E(p)(lab)=1600, 1900, 2240, 2460, 2600, 2800, 2960, 3120.

^{42}Ca Levels

A_2, A_4 and A_6 coefficients from angular distributions are from 1970De10.

E(level)[†]	J^π[‡]	$(2J+1)\Gamma_P\Gamma_\alpha/\Gamma$[&]	E(p)(lab)	Comments
11426.8 *15*		3.1 eV	1178.2 *15*	
11429.6 *15*	$(0^+,1^-,2^+)$	2.6 eV	1181.0 *15*	A_2=+0.03 *13*.
11432.0 *15*		5.6 eV	1183.5 *15*	
11435.5 *15*	$1^-,2^+$	2.8 eV	1187.1 *15*	A_2=−0.44 *8*, A_4=+0.05 *13*, A_6=−0.09 *11*.
11440.4 *15*		1.9 eV	1192.1 *15*	
11444.3 *15*		1.9 eV	1196.1 *15*	
11447.7 *15*	$0^+,1^-,2^+$	6.8 eV	1199.6 *15*	A_2=−0.14 *5*, A_4=+0.05 *7*.
11449.0 *15*		10 eV	1200.9 *15*	
11450.5 *15*		9.0 eV	1202.4 *15*	
11453.1 *15*		1.9 eV	1205.1 *15*	
11464.7 *15*		0.7 eV	1217.0 *15*	
11468.1 *15*		0.7 eV	1220.5 *15*	
11469.3 *15*	$1^-,2^+$	2.6 eV	1221.7 *15*	A_2=−0.32 *5*, A_4=+0.13 *7*.
11473.5 *15*	$(1^-,2^+)$	6.0 eV	1226.0 *15*	A_2=−0.46 *7*, A_4=+0.14 *11*, A_6=−0.11 *10*.
11475.8 *15*		5.6 eV	1228.3 *15*	
11477.7 *15*		3.5 eV	1230.3 *15*	
11484.4 *15*	(2^+)	7.4 eV	1237.2 *15*	A_2=−0.40 *5*, A_4=+0.23 *8*, A_6=−0.11 *7*.
11488.7 *15*	1^-	15 eV	1241.6 *15*	A_2=−0.85 *5*, A_4=+0.11 *7*, A_6=−0.04 *6*.
11490.3 *15*		9.2 eV	1243.2 *15*	
11493.6 *15*		2.1 eV	1246.6 *15*	
11499.4 *15*		1.6 eV	1252.5 *15*	
11501.1 *15*		2.4 eV	1254.3 *15*	
11503.4 *15*		2.8 eV	1256.6 *15*	
11505.4 *15*	$0^+,1^-,2^+$	2.7 eV	1258.7 *15*	A_2=−0.11 *5*, A_4=+0.07 *8*, A_6=−0.09 *7*.
11508.8 *15*		2.4 eV	1262.2 *15*	
11510.9 *15*	(1^-)	7.1 eV	1264.3 *15*	A_2=−0.96 *3*, A_4=+0.15 *5*, A_6=−0.06 *4*.
11512.5 *15*		5.7 eV	1265.9 *15*	
11516.6 *15*	(1^-)	1.9 eV	1270.1 *15*	A_2=−0.76 *7*, A_4=−0.05 *11*.
11518.2 *15*		2.9 eV	1271.8 *15*	
11523.3 *15*	$(1^-),2^+$	1.1 eV	1277.0 *15*	A_2=+0.32 *7*, A_4=−0.21 *9*, A_6=+0.09 *9*.
11525.4 *15*		1.8 eV	1279.2 *15*	
11527.4 *15*	$(1^-,2^+)$	3.9 eV	1281.2 *15*	A_2=+0.66 *18*, A_4=−0.14 *20*.
11529.3 *15*	$(0^+),1^-,2^+$	10 eV	1283.2 *15*	A_2=+0.03 *8*.
11531.0 *15*		6.9 eV	1284.9 *15*	
11532.6 *15*		2.5 eV	1286.5 *15*	
11540.0 *15*	(1^-)	10 eV	1294.1 *15*	A_2=−0.71 *7*, A_4=+0.07 *11*.

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^{41}K(p,α):resonances 1970De10 (continued)

^{42}Ca Levels (continued)

E(level)[†]	Jπ[‡]	(2J+1)$\Gamma_p\Gamma_\alpha/\Gamma$[&]	E(p)(lab)	Comments
11542.3 *15*	0$^+$,1$^-$,2$^+$	14 eV	1296.5 *15*	A_2=−0.05 *5*, A_4=−0.03 *7*, A_6=+0.06 *6*.
11543.6 *15*		10 eV	1297.8 *15*	
11544.4 *15*		18 eV	1298.6 *15*	
11550.0 *15*	0$^+$,1$^-$,2$^+$	2.2 eV	1304.4 *15*	A_2==0.65 *7*, A_4=−0.04 *8*, A_6=+0.07 *8*.
11551.5 *15*		2.7 eV	1305.9 *15*	
11555.4 *15*	(1$^-$)	6.9 eV	1309.9 *15*	A_2=−0.83 *4*, A_4=+0.13 *6*, A_6=−0.05 *5*.
11556.3 *15*		12 eV	1310.8 *15*	
11558.1 *15*		15 eV	1312.7 *15*	
11562.8 *15*		1.0 eV	1317.5 *15*	
11569.2 *15*	1$^-$	4.2 eV	1324.0 *15*	A_2=−0.96 *3*, A_4=+0.08 *6*, A_6=−0.03 *5*.
11571.7 *15*	0$^+$,1$^-$,2$^+$	3.3 eV	1326.6 *15*	A_2=−0.06 *9*, A_4=−0.15 *12*, A_6=+0.08 *10*.
11572.8 *15*	(1$^-$,3$^-$,4$^+$)	2.8 eV	1327.7 *15*	A_2=+0.95 *34*, A_4=−0.34 *35*, A_6=+0.18 *30*.
11575.2 *15*	(3$^-$,4$^+$)	3.2 eV	1330.2 *15*	A_2=+2.0 *4*, A_4=−0.10 *34*, A_6=−0.39 *34*.
11576.2 *15*		2.4 eV	1331.2 *15*	
11589.8 *15*	(1$^-$)	9.0 eV	1345.1 *15*	A_2=−1.02 *3*, A_4=+0.04 *5*, A_6=+0.04 *4*.
11591.1 *15*		13 eV	1346.5 *15*	A_2=+1.53 *18*, A_4=−0.12 *16*, A_6=+0.28 *13*.
11592.6 *15*		13 eV	1348.0 *15*	
11594.6 *15*		5.4 eV	1350.0 *15*	
11596.7 *15*	1$^-$	13 eV	1352.2 *15*	A_2=−1.01 *4*, A_4=+0.03 *7*, A_6=−0.04 *6*.
11599.4 *15*	1$^-$,2$^+$	20 eV	1355.0 *15*	A_2=−0.44 *7*, A_4=−0.01 *11*, A_6=+0.08 *9*.
11601.8 *15*	1$^-$	16 eV	1357.4 *15*	A_2=−1.05 *5*, A_4=+0.08 *9*, A_6=+0.03 *7*.
11603.5 *15*		9.3 eV	1359.2 *15*	
11612.5 *15*	1$^-$	18 eV	1368.4 *15*	A_2=−0.83 *4*, A_4=+0.02 *7*, A_6=−0.04 *6*. Γ=170 eV *50* (Γ_α=5 eV *2*, Γ_n<3 eV, Γ_p=160 eV *50*) (1970De11). E(level): possible analog of 1913 level in ^{42}K.
11614.0 *15*		15 eV	1369.9 *15*	
11616.0 *15*	1$^-$	17 eV	1372.0 *15*	A_2=−0.86 *5*, A_4=0.00 *9*, A_6=−0.07 *7*.
11621.0 *15*	(1$^-$),2$^+$	6.0 eV	1377.1 *15*	A_2=−0.76 *12*, A_4=+0.27 *22*.
11632.8 *15*		2.1 eV	1389.2 *15*	
11634.5 *15*	1$^-$,2$^+$	12 eV	1390.9 *15*	A_2=−0.17 *3*, A_4=+0.01 *4*, A_6=−0.05 *3*.
11636.1 *15*	1$^-$,(2$^+$)	3.5 eV	1392.6 *15*	A_2=−0.56 *3*, A_4=0.00 *4*, A_6=+0.02 *3*.
11637.4 *15*	1$^-$,2$^+$	20 eV	1393.9 *15*	A_2=−0.28 *3*, A_4=−0.03 *4*, A_6=+0.03 *3*.
11639.4 *15*	1$^-$	27 eV	1395.9 *15*	A_2=−0.81 *3*, A_4=+0.05 *5*, A_6=−0.06 *4*. Γ=40 eV *10* (Γ_α=14 eV *5*, Γ_n<4 eV, Γ_p=25 eV *10*) (1970De11). E(level): possible analog of 1927 level in ^{42}K.
11641.1 *15*		21 eV	1397.7 *15*	
11643.5 *15*		4.5 eV	1400.1 *15*	A_2=+1.87 *16*, A_4=+0.40 *14*, A_6=−0.11 *13*.
11644.2 *15*	(0$^+$),1$^-$,2$^+$	8.0 eV	1400.9 *15*	A_2=−0.29 *12*, A_4=−0.12 *18*.
11646.2 *15*	(4$^+$)	10 eV	1402.9 *15*	A_2=+1.5 *10*, A_4=+0.6 *6*.
11651.2 *15*	(1$^-$),2$^+$	4.1 eV	1408.0 *15*	A_2=−0.52 *4*, A_4=−0.14 *6*.
11653.4 *15*		2.4 eV	1410.3 *15*	A_2=+1.12 *22*, A_4=−0.75 *24*, A_6=+0.20 *20*.
11654.2 *15*	(1$^-$)	4.2 eV	1411.1 *15*	A_2=−0.85 *5*, A_4=−0.09 *8*, A_6=+0.05 *7*.
11656.8 *15*	(1$^-$)	20 eV	1413.8 *15*	A_2=−0.60 *5*, A_4=−0.09 *7*.
11662.2 *15*	(1$^-$,2$^+$)	15 eV	1419.3 *15*	A_2=+0.33 *6*, A_4=+0.05 *7*.
11664.9 *15*		12 eV	1422.1 *15*	
11670.9 *15*	2$^+$	1.3 eV	1428.2 *15*	A_2=+0.18 *7*, A_4=−0.46 *9*.
11689.2 *15*	(1$^-$,2$^+$)	20 eV	1447.0 *15*	A_2=+0.03 *2*, A_4=+0.07 *3*, A_6=+0.03 *3*.
11695.0 *15*	(3$^-$)	34 eV	1452.9 *15*	A_2=+0.78 *3*, A_4=−0.03 *4*, A_6=+0.17 *4*.
11697.3 *15*		31 eV	1455.3 *15*	
11699.7 *15*		8.9 eV	1457.7 *15*	
11707.5 *15*	2$^+$	4.7 eV	1465.7 *15*	A_2=−0.05 *7*, A_4=−0.28 *10*, A_6=+0.04 *9*.
11709.2 *15*	(1$^-$,2$^+$)	28 eV	1467.4 *15*	A_2=−0.10 *2*, A_4=−0.04 *3*, A_6=+0.04 *3*.
11710.1 *15*		40 eV	1468.4 *15*	
11718.3 *15*		2.6 eV	1476.8 *15*	
11727.1 *15*	(0$^+$,1$^-$,2$^+$)	2.2 eV	1485.8 *15*	A_2=+0.05 *4*, A_4=−0.19 *5*, A_6=+0.15 *5*.
11728.2 *15*		11 eV	1486.9 *15*	

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^{41}K(p,α):resonances 1970De10 (continued)

^{42}Ca Levels (continued)

E(level)[†]	J$^{\pi}$[‡]	(2J+1)$\Gamma_P\Gamma_\alpha/\Gamma$[&]	E(p)(lab)	Comments
11729.3 *15*		9.7 eV	1488.0 *15*	
11733.0 *15*		13 eV	1491.8 *15*	A_2=−0.34 *4*, A_4=+0.21 *6*, A_6=−0.20 *5*.
11737.4 *15*	(0$^+$,1$^-$,2$^+$)	12 eV	1496.3 *15*	A_2=−0.02 *7*, A_4=−0.04 *10*, A_6=+0.05 *9*.
11738.4 *15*	1$^-$	30 eV	1497.4 *15*	A_2=−0.67 *3*, A_4=+0.02 *4*, A_6=+0.02 *4*.
11743.4 *15*		3.4 eV	1502.5 *15*	
11748.0 *15*		4.5 eV	1507.2 *15*	
11752.3 *15*		4.5 eV	1511.6 *15*	
11756.6 *15*	(1$^-$)	9.2 eV	1516.0 *15*	A_2=−1.11 *2*, A_4=+0.24 *4*, A_6=−0.03 *4*.
11772.7 *15*	1$^-$,2$^+$	27 eV	1532.5 *15*	A_2=+0.15 *3*, A_4=+0.05 *4*, A_6=+0.03 *4*.
11777.2 *15*		16 eV	1537.1 *15*	
11778.5 *15*	0$^+$,1$^-$,2$^+$	12 eV	1538.4 *15*	A_2=−0.01 *5*, A_4=−0.14 *6*, A_6=+0.08 *6*.
11783.0 *15*	(1$^-$,2$^+$)	18 eV	1543.0 *15*	A_2=+0.32 *10*, A_4=+0.33 *12*, A_6=−0.06 *11*.
11784.7 *15*	(1$^-$),2$^+$	18 eV	1544.8 *15*	A_2=+0.18 *9*, A_4=+0.44 *12*, A_6=−0.10 *11*.
11786.1 *15*		6.7 eV	1546.2 *15*	
11787.5 *15*		9.3 eV	1547.6 *15*	
11789.8 *15*		7.6 eV	1550.0 *15*	
11795.2 *15*		7.0 eV	1555.5 *15*	
11798.3 *15*	1$^-$,2$^+$	210 eV	1558.7 *15*	A_2=+0.04 *3*, A_4=+0.05 *3*, A_6=+0.02 *4*. Γ=300 eV *100* (Γ_α=100 eV *70*, Γ_n<4 eV, Γ_p=200 eV *7*) for J=1; Γ=180 eV *60* (Γ_α=60 eV *40*, Γ_n<4 eV, Γ_p=120 eV *40*) (1970De11). E(level): possible analog of 2061 level in ^{42}K.
11805.4 *15*	1$^-$,2$^+$[#]	12 eV	1566.0 *15*	Γ=170 eV *70* (Γ_α=5 eV *3*, Γ_n=26 eV *15*, Γ_p=140 eV *60*) for J=1; Γ=100 eV *50* (Γ_α=3 eV *2*, Γ_n=16 eV *10*, Γ_p=85 eV *40*) (1970De11).
11808.2 *15*	0$^+$,1$^-$,2$^+$	11 eV	1568.9 *15*	A_2=−0.09 *5*, A_4=−0.05 *7*.
11811.1 *15*	1$^-$,2$^+$[#]	5.7 eV	1571.8 *15*	Γ=110 eV *50* (Γ_α<4 eV, Γ_n=11 eV *7*, Γ_p=95 eV *50*) for J=1; Γ=63 eV *30* (Γ_α<2 eV, Γ_n=6 eV *4*, Γ_p=56 eV *30*) (1970De11).
11818.0 *15*		6.5 eV	1578.9 *15*	
11822.4 *15*	(1$^-$)	3.5 eV	1583.4 *15*	A_2=−0.81 *4*, A_4=+0.18 *7*, A_6=−0.03 *6*.
11824.0 *15*	1$^-$,2$^+$	5.5 eV	1585.0 *15*	A_2=−0.69 *5*, A_4=+0.23 *9*, A_6=−0.10 *7*.
11829.0 *15*	(1$^-$,2$^+$)	12 eV	1590.2 *15*	A_2=+0.26 *8*, A_4=−0.06 *10*, A_6=+0.11 *9*.
11830.2 *15*	(2$^+$)	34 eV	1591.4 *15*	A_2=+0.24 *5*, A_4=−0.08 *7*.
11831.8 *15*		34 eV	1593.0 *15*	
11836.4 *15*	(4$^+$)	8.7 eV	1597.7 *15*	A_2=+1.61 *16*, A_4=+0.64 *16*, A_6=−0.17 *16*.
11843.3 *15*	1$^-$,2$^+$	4.6 eV	1604.8 *15*	A_2=+0.50 *8*, A_4=−0.04 *10*, A_6=+0.05 *9*.
11844.9 *15*	(1$^-$),2$^+$	7.7 eV	1606.4 *15*	A_2=−0.27 *6*, A_4=+0.21 *9*, A_6=+0.07 *8*.
11846.8 *15*		10 eV	1608.4 *15*	
11852.6 *15*	1$^-$	11 eV	1614.3 *15*	A_2=−0.78 *7*, A_4=+0.05 *12*, A_6=+0.04 *8*.
11856.4 *15*		8.8 eV	1618.2 *15*	A_2=+2.1 *3*.
11865.6 *15*	0$^+$,(1$^-$),2$^+$	9.8 eV	1627.7 *15*	A_2=−0.05 *8*, A_4=−0.09 *10*.
11871.5 *15*		27 eV	1633.7 *15*	
11872.8 *15*		10 eV	1635.0 *15*	
11873.7 *15*		12 eV	1635.9 *15*	
11885.2 *15*	(1$^-$,2$^+$,3$^-$)	43 eV	1647.7 *15*	A_2=+0.60 *7*, A_4=+0.01 *7*, A_6=−0.14 *7*.
11895.3 *15*	1$^-$,(2$^+$)	5.7 eV	1658.1 *15*	A_2=−0.63 *7*, A_4=−0.02 *11*, A_6=+0.04 *10*.
11902.0 *15*	(1$^-$),2$^+$	18 eV	1664.9 *15*	A_2=−0.39 *5*, A_4=+0.02 *7*, A_6=+0.03 *7*.
11906.3 *15*	1$^-$,3$^-$	29 eV	1669.3 *15*	A_2=+0.99 *8*.
11910.6 *15*	(1$^-$,2$^+$)	81 eV	1673.8 *15*	A_2=−0.45 *3*, A_4=−0.08 *5*, A_6=+0.02 *5*.
11923.3 *15*	(1$^-$,2$^+$)	130 eV	1686.8 *15*	A_2=−0.56 *4*, A_4=−0.03 *6*, A_6=+0.11 *5*.
11925.6 *15*		88 eV	1689.1 *15*	
11933.1 *15*	(1$^-$,2$^+$)	19 eV	1696.8 *15*	A_2=−0.26 *7*, A_4=+0.01 *11*, A_6=+0.04 *9*.
11941.9 *15*	2$^+$	9.0 eV	1705.8 *15*	A_2=+0.03 *7*, A_4=−0.54 *10*, A_6=−0.06 *11*.
11944.4 *15*	1$^-$	62 eV	1708.4 *15*	A_2=−0.70 *3*, A_4=−0.02 *5*, A_6=+0.02 *5*.
11950.1 *15*		83 eV	1714.2 *15*	
11959.2 *15*	(1$^-$)	81 eV	1723.5 *15*	A_2=−1.04 *4*, A_4=+0.03 *7*.

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^{41}K(p,α):resonances 1970De10 (continued)

^{42}Ca Levels (continued)

E(level)[†]	Jπ[‡]	(2J+1)ΓpΓα/Γ[&]	E(p)(lab)	Comments
11962.8 *15*	1⁻,2⁺	35 eV	1727.2 *15*	A_2=−0.25 *5*, A_4=+0.09 *8*.
11970.2 *15*	1⁻	260 eV	1734.8 *15*	A_2=−1.00 *3*. Γ=430 eV *360* (Γ_α=310 eV *350*, Γ_n<9 eV, Γ_p=120 eV *30*) (1970De11).
11976.8 *15*	(2⁺)	22 eV	1741.6 *15*	A_2=+0.30 *10*, A_4=−0.77 *13*, A_6=+0.16 *11*.
11980.3 *15*	1⁻	180 eV	1745.1 *15*	A_2=−0.69 *4*, A_4=−0.06 *7*, A_6=+0.07 *7*. Γ=320 eV *80* (Γ_α=95 eV *50*, Γ_n=21 eV *10*, Γ_p=200 eV *50*) (1970De11). E(level): possible analog of 2227 level in ^{42}K.
11989.0 *15*	(2⁺,3⁻)	8.9 eV	1754.1 *15*	A_2=+0.40 *16*, A_4=−0.77 *22*, A_6=+0.07 *19*.
11992.1 *15*	1⁻,2⁺	120 eV	1757.2 *15*	A_2=−0.37 *4*, A_4=+0.03 *5*.
12000.2 *15*	2⁺	59 eV	1765.5 *15*	A_2=−0.04 *3*, A_4=+0.12 *4*.
12005.0 *15*	(1⁻,2⁺)	38 eV	1770.5 *15*	A_2=+0.25 *7*, A_4=−0.08 *9*, A_6=+0.06 *9*.
12006.3 *15*		53 eV	1771.8 *15*	A_2=+0.30 *19*.
12012.0 *15*	(2⁺)	11 eV	1777.6 *15*	A_2=+0.26 *5*, A_4=−0.11 *6*, A_6=+0.06 *6*.
12013.6 *15*		110 eV	1779.3 *15*	
12020.4 *15*	1⁻,2⁺	130 eV	1786.2 *15*	A_2=+0.36 *3*, A_4=+0.03 *3*, A_6=+0.03 *3*.
12029.5 *15*	0⁺,1⁻,2⁺	34 eV	1795.5 *15*	A_2=−0.14 *9*, A_4=+0.20 *12*, A_6=+0.05 *12*.
12032.5 *15*	(3⁻)	29 eV	1798.6 *15*	A_2=+1.19 *12*, A_4=−0.04 *12*, A_6=+0.24 *12*.
12039.8 *15*	1⁻	9.4 eV	1806.1 *15*	A_2=−1.06 *6*, A_4=+0.09 *10*, A_6=+0.06 *9*.
12041.8 *15*		8.2 eV	1808.2 *15*	
12042.8 *15*		16 eV	1809.2 *15*	
12050.9 *15*	1⁻,2⁺	23 eV	1817.5 *15*	A_2=+0.31 *7*, A_4=+0.05 *9*, A_6=+0.06 *10*.
12052.0 *15*		43 eV	1818.6 *15*	
12061.8 *15*		17 eV	1828.6 *15*	
12066.2 *15*	(1⁻,2⁺)	7.7 eV	1833.1 *15*	A_2=+0.21 *7*, A_4=−0.08 *9*.
12070.1 *15*	(2⁺)	39 eV	1837.1 *15*	A_2=−0.20 *6*, A_4=+0.03 *9*, A_6=+0.06 *7*.
12071.4 *15*		25 eV	1838.5 *15*	
12082.8 *15*		34 eV	1850.2 *15*	A_2=+0.11 *4*, A_4=−0.09 *5*, A_6=+0.12 *5*.
12085.2 *15*		18 eV	1852.6 *15*	
12091.9 *15*		41 eV	1859.5 *15*	A_2=−0.09 *8*, A_4=−0.17 *11*, A_6=+0.22 *11*.
12101.3 *15*	1⁻[#]	70 eV	1869.1 *15*	A_2=−0.09 *4*, A_4=0.00 *6*, A_6=−0.03 *5*. Γ=770 eV *300* (Γ_α=27 eV *20*, Γ_n=78 eV *60*, Γ_p=660 eV *290*) (1970De11). E(level): possible analog of 2356 level in ^{42}K.
12105.1 *15*		19 eV	1873.0 *15*	
12112.2 *15*	1⁻[#]	39 eV	1880.3 *15*	Γ=810 eV *90* (Γ_α=14 eV *5*, Γ_n=55 eV *30*, Γ_p=740 eV *80*) (1970De11). E(level): possible analog of 2389 level in ^{42}K.
12116.5 *15*	(2⁺)	240 eV	1884.7 *15*	A_2=+0.10 *4*, A_4=+0.09 *5*, A_6=+0.03 *5*.
12123.8 *15*	(1⁻),2⁺	24 eV	1892.1 *15*	A_2=−0.47 *7*, A_4=+0.14 *10*, A_6=−0.03 *10*.
12127.6 *15*		200 eV	1896.0 *15*	A_2=−0.61 *5*, A_4=−0.33 *7*, A_6=+0.07 *6*.
12135.2 *15*		130 eV	1903.8 *15*	A_2=+1.07 *10*, A_4=+0.16 *10*, A_6=+0.35 *10*.
12137.9 *15*		110 eV	1906.6 *15*	
12144.7 *15*		36 eV	1913.6 *15*	
12146.8 *15*		87 eV	1915.7 *15*	
12148.5 *15*		66 eV	1917.5 *15*	
12153.7 *15*	2⁺	53 eV	1922.8 *15*	A_2=−0.07 *5*, A_4=−0.23 *8*, A_6=−0.02 *7*.
12158.6 *15*	1⁻[#]	150 eV	1927.8 *15*	A_2=−0.19 *3*, A_4=−0.09 *4*, A_6=+0.05 *4*. Γ=210 eV *70* (Γ_α=80 eV *50*, Γ_n<5 eV, Γ_p=130 eV *50*) (1970De11).
12163.1 *15*	1⁻[#]	240 eV	1932.4 *15*	Γ=380 eV *120* (Γ_α=120 eV *80*, Γ_n=7 eV *5*, Γ_p=250 eV *90*) (1970De11).
12168 *3*	(1⁻)	<5 eV	1937 *3*	E(level),Jπ: from ^{41}K(p,n) (1970De11). Γ=105 eV *50* (Γ_α<5 eV, Γ_n<10 eV, Γ_p=100 eV *50*) (1970De11).
12175.7 *15*	1⁻[#]	220 eV	1945.3 *15*	A_2=−0.71 *2*, A_4=−0.02 *4*, A_6=+0.05 *4*.

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^{41}K(p,α):resonances 1970De10 (continued)

^{42}Ca Levels (continued)

E(level)[†]	Jπ[‡]	(2J+1)$\Gamma_P\Gamma_\alpha/\Gamma$[&]	E(p)(lab)	Comments
				Γ=850 eV *110* (Γ_α=84 eV *30*, Γ_n=21 eV *10*, Γ_p=740 eV *100*) (1970De11).
12182.8 *15*	1^{-}[#]	110 eV	1952.6 *15*	A_2=−0.40 *4*, A_4=+0.04 *6*. Γ=480 eV *60* (Γ_α=40 eV *20*, Γ_n<4 eV, Γ_p=440 eV *50*) (1970De11). E(level): possible analog of 2470 level in ^{42}K.
12187.7 *15*		32 eV	1957.6 *15*	
12203.0 *15*	$(1^-,3^-)$	13 eV	1973.3 *15*	A_2=+0.85 *6*, A_4=−0.21 *6*, A_6=+0.04 *6*.
12204.1 *15*		19 eV	1974.4 *15*	
12207.9 *15*	$(0^+),1^-,2^+$	19 eV	1978.3 *15*	A_2=+0.23 *6*, A_4=−0.02 *7*, A_6=−0.09 *7*.
12210.4 *15*		26 eV	1980.9 *15*	
12212.2 *15*		25 eV	1982.7 *15*	
12221.0 *15*		5.1 eV	1991.7 *15*	
12222.7 *15*		5.1 eV	1993.5 *15*	
12226.3 *15*		230 eV	1997.1 *15*	A_2=+0.01 *2*, A_4=−0.27 *3*, A_6=+0.11 *3*.
12230.5 *15*	$(1^-,2^+),3^-$	250 eV	2001.5 *15*	A_2=+0.61 *9*, A_4=+0.26 *11*.
12238.4 *15*	$(1^-),3^-$	14 eV	2009.5 *15*	A_2=+0.83 *11*, A_4=+0.11 *12*, A_6=+0.11 *11*.
12239.4 *15*		20 eV	2010.6 *15*	
12246.4 *15*	$(1^-),2^+$	20 eV	2017.7 *15*	A_2=−0.37 *3*, A_4=+0.11 *4*.
12247.6 *15*		24 eV	2019.0 *15*	
12251.8 *15*	(1^-)	130 eV	2023.3 *15*	A_2=−0.52 *5*, A_4=+0.04 *7*.
12260.2 *15*	$2^+,(3^-)$	23 eV	2031.9 *15*	A_2=−0.54 *11*, A_4=−0.86 *13*.
12265.2 *15*	1^-	31 eV	2037.0 *15*	A_2=−0.89 *6*, A_4=−0.18 *10*, A_6=+0.07 *9*.
12268.1 *15*	3^-	120 eV	2040.0 *15*	A_2=+0.62 *8*, A_4=−0.21 *10*, A_6=+0.27 *9*.
12271.8 *15*	$1^-,2^+$	180 eV	2043.8 *15*	A_2=−0.26 *7*, A_4=0.00 *10*, A_6=+0.05 *9*.
12277.2 *15*	$(0^+),1^-,2^+,3^-,4^+$	50 eV	2049.3 *15*	A_2=+0.56 *33*.
12278.7 *15*		70 eV	2050.8 *15*	
12285.7 *15*	$(1^-),2^+$	270 eV	2058.0 *15*	A_2=−0.40 *3*, A_4=+0.12 *4*.
12287.7 *15*		110 eV	2060.0 *15*	
12291.3 *15*		78 eV	2063.7 *15*	
12294.9 *15*		57 eV	2067.4 *15*	
12298.6 *15*	$(1^-,2^+,3^-)$	78 eV	2071.2 *15*	A_2=+0.51 *7*, A_4=+0.10 *9*, A_6=+0.21 *8*.
12300.6 *15*		58 eV	2073.3 *15*	
12304.9 *15*		250 eV	2077.7 *15*	A_2=+0.92 *4*, A_4=−0.11 *5*, A_6=+0.17 *5*.
12308.2 *15*		74 eV	2081.0 *15*	
12310.9 *15*		79 eV	2083.8 *15*	
12320.6 *15*	$(0^+,1^-),2^+$	200 eV	2093.8 *15*	A_2=−0.23 *4*, A_4=+0.17 *6*, A_6=+0.21 *5*.
12323.2 *15*	$1^-,2^+$	210 eV	2096.4 *15*	A_2=−0.48 *7*.
12327.0 *15*		160 eV	2100.3 *15*	
12336[@]			2110	
12340[@]			2114	
12348[@]			2122	
12351[@]			2125	
12355[@]			2129	
12362[@]			2136	
12366[@]			2140	
12372[@]			2146	
12377[@]			2152	
12381[@]			2156	
12383[@]			2158	
12386[@]			2161	
12397[@]			2172	

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^{41}K(p,α):resonances 1970De10 (continued)

^{42}Ca Levels (continued)

† E(p)(C.M.)+S(p) with S(p)=10276.67 *15* (2012Wa38) and E(p)(C.M.) deduced from E(p)(lab). From 1970De10, unless otherwise noted.
‡ From comparisons of experimental data of angular distributions with theoretical predictions (1970De10), unless otherwise noted.
# From fits to experimental cross-section data (1970De11).
@ From 1967An10.
& From 1970De10. Uncertainty is 30%.