

# R-matrix parameters in Be7\_IAEA\_kunieda.amur

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(Dated: October 5, 2018)

TABLE I: Particle Properties. Masses are in amu, and excitation energies in MeV.

Particle	Mass	Charge	Spin	Parity	$E^*$
H1	1.007825	1	0.5	1	0.0
He3	3.016029	2	0.5	1	0.
He4	4.002603	2	0.0	1	0.0
Li6	6.015122	3	1.0	1	0.

TABLE II: Channel Properties. Q values are in MeV, and radii in fm.

GND Label	Projectile	Target	Q value	Radius	Compound	Eliminated
H1 + Li6	H1	Li6	-4.01972	3.94397	Be7	False
He4 + He3	He4	He3	0.0	4.24151	Be7	False

TABLE III: R-matrix parameters in the  $B = -L$  basis.  
Pole energies in the laboratory frame of the elastic channel.  
Reduced width amplitudes  $\gamma_c$  in units of  $\text{MeV}^{1/2}$ .

$J^\pi = 0.5^-$				
E (MeV)	H1+Li6 LS: 1, 1/2	H1+Li6 LS: 1, 3/2	He4+He3 LS: 1, 1/2	
42.851181	-0.50482	1.85198	0.00000	
42.851181	0.00000	0.00000	0.98875	
$J^\pi = 0.5^+$				
E (MeV)	H1+Li6 LS: 0, 1/2	H1+Li6 LS: 2, 3/2	He4+He3 LS: 0, 1/2	
42.851181	2.66303	1.01127	-2.71649	
$J^\pi = 1.5^-$				
E (MeV)	H1+Li6 LS: 1, 1/2	H1+Li6 LS: 1, 3/2	H1+Li6 LS: 3, 3/2	He4+He3 LS: 1, 1/2
-3.691023	-1.34077	-0.41816	0.00000	1.05725
42.851181	-2.05569	2.06903	0.00000	0.50436
42.851181	0.00000	0.00000	0.00000	1.85670
$J^\pi = 1.5^+$				
E (MeV)	H1+Li6 LS: 0, 3/2	H1+Li6 LS: 2, 1/2	H1+Li6 LS: 2, 3/2	He4+He3 LS: 2, 1/2
42.851181	0.32360	-1.32598	-1.21537	1.34552
42.851181	2.65478	0.00000	0.00000	0.00000
$J^\pi = 2.5^-$				
E (MeV)	H1+Li6 LS: 1, 3/2	H1+Li6 LS: 3, 1/2	He4+He3 LS: 3, 1/2	
13.373137	0.94880	0.00000	0.18770	
16.495411	-0.34947	0.00000	1.18381	
$J^\pi = 2.5^+$				
E (MeV)	He4+He3 LS: 2, 1/2			
42.851181	1.72315			
$J^\pi = 3.5^-$				
E (MeV)	H1+Li6 LS: 3, 1/2	H1+Li6 LS: 3, 3/2	H1+Li6 LS: 5, 3/2	He4+He3 LS: 3, 1/2
8.107533	0.00000	0.00000	0.00000	0.79362
42.851181	0.00000	0.00000	0.00000	1.91972
$J^\pi = 3.5^+$				
E (MeV)	H1+Li6 LS: 2, 3/2			
42.851181	3.28320			