# R-matrix parameters in test1b-v9gL-xs2.sfrescoed+.sfresco

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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 | 3.01603 | 2 | 0.5 | 1 | 0. |
| He4 | 4.002603 | 2 | 0.0 | 1 | 0.0 |
| Li6 | 6.0151 | 3 | 1.0 | 1 | 0. |

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

| GNDS Label | Projectile | Target | Q value | Radius | Compound | Eliminated |
|---|---|---|---|---|---|---|
| He4 + He3 | He4 | He3 | 0.0 | 4.24151 | Be7 | False |
| H1 + Li6 | H1 | Li6 | −4.0198 | 3.94396 | Be7 | False |

TABLE III: R-matrix parameters in the Brune basis.
Pole energies are relative to ground state of composite Be7 system at 1.586 MeV below threshold.
Reduced width amplitudes $\gamma_c$ in units of $\mathrm{MeV}^{1/2}$ (cm).

| $J^\pi = 1.5^-$ | | | | |
|---|---|---|---|---|
| E | He4+He3 | H1+Li6 | H1+Li6 | H1+Li6 |
| (MeV) | LS: 1, 1/2 | LS: 1, 1/2 | LS: 1, 3/2 | LS: 3, 3/2 |
| −0.002166 | 0.76288 | 0.21545 | −1.04844 | 1.23557 |
| 10.071907 | −0.34640 | 1.48027 | 2.11256 | 1.24303 |
| 18.403 B | −1.53226 | 0.33189 | −0.37061 | 0.47641 |
| $J^\pi = 0.5^-$ | | | | |
| E | He4+He3 | H1+Li6 | H1+Li6 | |
| (MeV) | LS: 1, 1/2 | LS: 1, 1/2 | LS: 1, 3/2 | |
| 0.429307 | −1.09659 | −3.13962 | −0.55730 | |
| 18.665 B | 1.23353 | −0.18473 | 1.25818 | |
| $J^\pi = 3.5^-$ | | | | |
| E | He4+He3 | H1+Li6 | H1+Li6 | H1+Li6 |
| (MeV) | LS: 3, 1/2 | LS: 3, 1/2 | LS: 3, 3/2 | LS: 5, 3/2 |
| 4.561439 | 2.96264 | 0.89748 | 8.86792 | −3.39222 |
| 12.189753 | 1.35569 | 0.42111 | −0.09688 | 1.11580 |
| $J^\pi = 2.5^-$ | | | | |
| E | He4+He3 | H1+Li6 | H1+Li6 | H1+Li6 |
| (MeV) | LS: 3, 1/2 | LS: 1, 3/2 | LS: 3, 1/2 | LS: 3, 3/2 |
| 6.619352 | −1.38317 | 0.11117 | 0.77435 | −0.31029 |
| 7.179387 | 0.40627 | 1.39529 | 0.98547 | −2.22104 |
| 10.098553 | 1.03639 | 0.39985 | −1.49707 | 0.47352 |
| $J^\pi = 0.5^+$ | | | | |
| E | He4+He3 | H1+Li6 | H1+Li6 | |
| (MeV) | LS: 0, 1/2 | LS: 0, 1/2 | LS: 2, 3/2 | |
| 19.093 B | −3.04315 | −2.93656 | −1.35584 | |
| $J^\pi = 1.5^+$ | | | | |
| E | He4+He3 | H1+Li6 | H1+Li6 | H1+Li6 |
| (MeV) | LS: 2, 1/2 | LS: 0, 3/2 | LS: 2, 1/2 | LS: 2, 3/2 |

TABLE III: R-matrix parameters in the Brune basis.
Pole energies are relative to ground state of composite Be7 system at 1.586 MeV below threshold.
Reduced width amplitudes $\gamma_c$ in units of $\mathrm{MeV}^{1/2}$ (cm).

| | | | | |
|---|---|---|---|---|
| 9.377802 | 0.30600 | −2.04886 | −0.15560 | −2.81061 |
| 12.685097 | 1.73807 | 0.09308 | 1.66989 | −0.18552 |
| $J^\pi = 2.5^+$ | | | | |
| E | He4+He3 | H1+Li6 | H1+Li6 | H1+Li6 |
| (MeV) | LS: 2, 1/2 | LS: 2, 1/2 | LS: 2, 3/2 | LS: 4, 3/2 |
| 8.452481 | 0.39322 | −1.28425 | −0.06523 | 6.47108 |
| 14.593649 | 1.71249 | 1.15150 | −0.10875 | 0.15786 |
| $J^\pi = 3.5^+$ | (zero for all L $\geq$ 0) | | | |
| E | | | | |
| (MeV) | | | | |
| $J^\pi = 4.5^-$ | (zero for all L $\geq$ 0) | | | |
| E | | | | |
| (MeV) | | | | |
| $J^\pi = 4.5^+$ | (zero for all L $\geq$ 0) | | | |
| E | | | | |
| (MeV) | | | | |