

TABLE I. -65.34 Eigenvectors and Eigenvalues... $|L, S\rangle$

| E (meV) | $ -3, -\frac{3}{2}\rangle$ | $ -3, -\frac{1}{2}\rangle$ | $ -3, \frac{1}{2}\rangle$ | $ -3, \frac{3}{2}\rangle$ | $ -2, -\frac{3}{2}\rangle$ | $ -2, -\frac{1}{2}\rangle$ | $ -2, \frac{1}{2}\rangle$ | $ -2, \frac{3}{2}\rangle$ | $ -1, -\frac{3}{2}\rangle$ | $ -1, -\frac{1}{2}\rangle$ | $ -1, \frac{1}{2}\rangle$ | $ -1, \frac{3}{2}\rangle$ | $ 0, -\frac{3}{2}\rangle$ | $ 0, -\frac{1}{2}\rangle$ | $ 0, \frac{1}{2}\rangle$ | $ 0, \frac{3}{2}\rangle$ | $ 1, -\frac{3}{2}\rangle$ | $ 1, -\frac{1}{2}\rangle$ | $ 1, \frac{1}{2}\rangle$ | $ 1, \frac{3}{2}\rangle$ |
|----------|----------------------------|----------------------------|---------------------------|---------------------------|----------------------------|----------------------------|---------------------------|---------------------------|----------------------------|----------------------------|---------------------------|---------------------------|---------------------------|---------------------------|--------------------------|--------------------------|---------------------------|---------------------------|--------------------------|--------------------------|
| 0.000 | 0.0 | -0.06 | -0.192 | -0.0 | -0.106 | -0.285 | 0.0 | 0.007 | -0.1 | 0.0 | 0.028 | 0.213 | 0.0 | 0.047 | 0.317 | 0.0 | 0.032 | 0.188 | 0.0 | 0.0 |
| 0.000 | 0.0 | -0.406 | 0.029 | -0.0 | -0.709 | 0.042 | -0.0 | 0.045 | 0.015 | -0.0 | 0.188 | -0.032 | -0.0 | 0.317 | -0.047 | 0.0 | 0.213 | -0.028 | 0.0 | 0.0 |
| 71.370 | -0.0 | 0.07 | -0.187 | 0.0 | 0.323 | -0.516 | 0.0 | 0.0 | -0.238 | 0.0 | 0.148 | -0.031 | 0.0 | 0.087 | 0.086 | 0.0 | -0.031 | 0.146 | 0.0 | 0.0 |
| 71.370 | 0.0 | -0.07 | -0.189 | 0.0 | -0.32 | -0.521 | 0.0 | -0.0 | -0.24 | 0.0 | -0.146 | -0.031 | 0.0 | -0.086 | 0.087 | -0.0 | 0.031 | 0.148 | -0.0 | 0.0 |
| 76.760 | 0.0 | 0.0 | 0.0 | 0.19 | 0.0 | 0.0 | 0.272 | -0.0 | 0.0 | 0.06 | 0.0 | 0.0 | -0.0 | 0.0 | -0.0 | -0.443 | -0.0 | -0.0 | -0.38 | 0.0 |
| 76.760 | 0.683 | 0.0 | -0.0 | -0.051 | 0.0 | -0.0 | -0.269 | -0.0 | -0.0 | -0.385 | 0.0 | -0.0 | -0.443 | 0.0 | 0.0 | 0.0 | -0.0 | 0.0 | -0.0 | -0.0 |
| 196.260 | -0.0 | 0.0 | 0.0 | 0.073 | -0.0 | -0.0 | 0.458 | -0.0 | -0.0 | 0.128 | -0.0 | -0.0 | 0.0 | -0.0 | -0.0 | 0.079 | -0.0 | -0.0 | -0.40 | 0.0 |
| 196.260 | 0.592 | 0.0 | 0.0 | 0.108 | -0.0 | 0.0 | 0.483 | -0.0 | 0.0 | 0.409 | -0.0 | 0.0 | -0.079 | -0.0 | 0.0 | 0.0 | -0.0 | 0.0 | 0.12 | 0.0 |
| 230.450 | 0.0 | 0.052 | 0.149 | -0.0 | -0.081 | -0.249 | -0.0 | -0.091 | -0.393 | -0.0 | -0.087 | -0.099 | 0.0 | -0.092 | -0.422 | -0.0 | -0.022 | -0.398 | 0.0 | 0.0 |
| 230.450 | 0.0 | -0.24 | 0.033 | 0.0 | 0.372 | -0.054 | 0.0 | 0.417 | -0.086 | 0.0 | 0.398 | -0.022 | -0.0 | 0.422 | -0.092 | -0.0 | 0.099 | -0.087 | 0.0 | 0.0 |
| 371.540 | 0.0 | 0.233 | 0.11 | -0.0 | -0.142 | -0.213 | -0.0 | 0.267 | 0.21 | 0.0 | 0.132 | -0.077 | 0.0 | -0.137 | -0.265 | -0.0 | -0.04 | 0.255 | -0.0 | 0.0 |
| 371.540 | -0.0 | 0.453 | -0.057 | -0.0 | -0.274 | 0.11 | 0.0 | 0.517 | -0.108 | 0.0 | 0.255 | 0.04 | 0.0 | -0.265 | 0.137 | 0.0 | -0.077 | -0.132 | 0.0 | 0.0 |
| 532.950 | 0.0 | -0.249 | 0.446 | -0.0 | 0.033 | -0.06 | -0.0 | 0.122 | -0.238 | 0.0 | 0.049 | -0.395 | 0.0 | -0.098 | -0.207 | 0.0 | -0.187 | 0.104 | -0.0 | 0.0 |
| 532.950 | 0.0 | 0.526 | 0.211 | 0.0 | -0.071 | -0.028 | -0.0 | -0.259 | -0.113 | -0.0 | -0.104 | -0.187 | 0.0 | 0.207 | -0.098 | -0.0 | 0.395 | 0.049 | -0.0 | 0.0 |
| 554.780 | 0.355 | 0.0 | -0.0 | -0.23 | 0.0 | 0.0 | -0.433 | -0.0 | -0.0 | 0.39 | 0.0 | 0.0 | 0.502 | 0.0 | 0.0 | -0.0 | 0.0 | 0.0 | -0.27 | 0.0 |
| 554.780 | -0.0 | -0.0 | 0.0 | 0.346 | 0.0 | 0.0 | -0.189 | 0.0 | -0.0 | -0.272 | -0.0 | 0.0 | -0.0 | -0.0 | 0.0 | -0.502 | -0.0 | 0.0 | -0.3 | 0.0 |
| 563.420 | 0.0 | -0.267 | -0.068 | -0.0 | -0.001 | -0.08 | -0.0 | -0.053 | 0.15 | 0.0 | -0.368 | -0.082 | 0.0 | -0.162 | -0.039 | -0.0 | -0.345 | -0.088 | -0.0 | 0.0 |
| 563.420 | 0.0 | -0.064 | 0.286 | -0.0 | -0.0 | 0.335 | 0.0 | -0.013 | -0.631 | 0.0 | -0.088 | 0.345 | 0.0 | -0.039 | 0.162 | 0.0 | -0.082 | 0.368 | 0.0 | 0.0 |
| 695.460 | -0.0 | 0.076 | 0.434 | -0.0 | -0.096 | -0.26 | -0.0 | 0.068 | 0.233 | 0.0 | 0.051 | 0.477 | -0.0 | 0.032 | -0.036 | 0.0 | -0.416 | -0.059 | -0.0 | 0.0 |
| 695.460 | 0.0 | -0.087 | 0.378 | 0.0 | 0.11 | -0.226 | -0.0 | -0.078 | 0.203 | 0.0 | -0.059 | 0.416 | -0.0 | -0.036 | -0.032 | -0.0 | 0.477 | -0.051 | 0.0 | 0.0 |
| 729.400 | -0.165 | -0.0 | 0.0 | -0.364 | 0.0 | -0.0 | -0.225 | 0.0 | 0.0 | 0.405 | -0.0 | -0.0 | -0.357 | -0.0 | 0.0 | 0.0 | 0.0 | 0.0 | -0.43 | 0.0 |
| 729.400 | 0.0 | -0.0 | -0.0 | -0.467 | 0.0 | -0.0 | 0.308 | 0.0 | -0.0 | -0.431 | -0.0 | 0.0 | 0.0 | -0.0 | -0.0 | 0.357 | 0.0 | -0.0 | -0.40 | 0.0 |
| 731.270 | -0.0 | 0.038 | -0.207 | -0.0 | -0.031 | 0.032 | -0.0 | -0.23 | -0.248 | 0.0 | 0.23 | 0.309 | -0.0 | 0.032 | -0.078 | 0.0 | -0.126 | -0.564 | -0.0 | 0.0 |
| 731.270 | 0.0 | -0.092 | -0.084 | 0.0 | 0.075 | 0.013 | -0.0 | 0.564 | -0.101 | 0.0 | -0.564 | 0.126 | -0.0 | -0.078 | -0.032 | -0.0 | 0.309 | -0.23 | 0.0 | 0.0 |
| 1086.400 | 0.0 | 0.0 | -0.0 | -0.647 | -0.0 | 0.0 | 0.186 | -0.0 | 0.0 | -0.052 | -0.0 | 0.0 | 0.0 | 0.0 | -0.0 | -0.647 | -0.0 | 0.0 | 0.29 | 0.0 |
| 1086.400 | 0.174 | -0.0 | -0.0 | -0.044 | 0.0 | 0.0 | 0.086 | -0.0 | 0.0 | -0.293 | 0.0 | 0.0 | 0.0 | -0.0 | -0.0 | 0.0 | 0.0 | 0.0 | -0.05 | 0.0 |
| 1112.740 | -0.0 | -0.053 | -0.368 | 0.0 | 0.015 | 0.116 | -0.0 | -0.022 | -0.014 | 0.0 | 0.078 | 0.318 | -0.0 | -0.15 | -0.703 | 0.0 | 0.068 | 0.365 | 0.0 | 0.0 |
| 1112.740 | 0.0 | 0.25 | -0.079 | 0.0 | -0.069 | 0.025 | -0.0 | 0.105 | -0.003 | 0.0 | -0.365 | 0.068 | 0.0 | 0.703 | -0.15 | 0.0 | -0.318 | 0.078 | -0.0 | 0.0 |