

$^{169}\text{Tm}$        $Z = 69$        $N = 100$       adopted link      ENSDF link

Based on ENSDF from Oct 2022, and mass evaluation from 2020

BE = 1371.345 ( 0.001) MeV

|          | Energy T | J+       |       | J-    |       | J-other |         | T1/2          |
|----------|----------|----------|-------|-------|-------|---------|---------|---------------|
| -----    |          |          |       |       |       |         |         |               |
| S-alpha= | -1.198   | ( 0.001) | ----- |       |       |         |         |               |
| 169TM 1  | 0.000    | 1/2+     |       |       |       |         |         | 1 STABLE      |
| 169TM 2  | 0.008    | 3/2+     |       |       |       |         |         | 2 4.09 NS 5   |
| 169TM 3  | 0.118    | 5/2+     |       |       |       |         |         | 3 62 PS 3     |
| 169TM 4  | 0.139    | 7/2+     |       |       |       |         |         | 4 302 PS 2    |
| 169TM 5  | 0.316    | 7/2+     |       |       |       |         |         | 5 659.9 NS 23 |
| 169TM 6  | 0.332    | 9/2+     |       |       |       |         |         | 6 18.8 PS 5   |
| 169TM 7  |          |          |       |       |       | 0.342   | (1/2-)  | 7             |
| 169TM 8  |          |          |       | 0.345 | 5/2-  |         |         | 8             |
| 169TM 9  | 0.368    | 11/2+    |       |       |       |         |         | 9 41.6 PS 21  |
| 169TM 10 |          |          |       | 0.379 | 7/2-  |         |         | 10 52.2 NS 8  |
| -----    |          |          |       |       |       |         |         |               |
| 169TM 11 |          |          |       |       |       | 0.430   | (9/2-)  | 11            |
| 169TM 12 |          |          |       |       |       | 0.434   | (9/2+)  | 12            |
| 169TM 13 |          |          |       | 0.473 | 9/2-  |         |         | 13 0.14 NS 7  |
| 169TM 14 |          |          |       |       |       | 0.475   | (3/2-)  | 14            |
| 169TM 15 | 0.571    | 3/2+     |       |       |       |         |         | 15 10 PS 7    |
| 169TM 16 |          |          |       |       |       | 0.575   | (11/2+) | 16            |
| 169TM 17 |          |          |       | 0.588 | 11/2- |         |         | 17            |
| 169TM 18 |          |          |       |       |       | 0.603   | (13/2-) | 18            |
| 169TM 19 | 0.633    | 5/2+     |       |       |       |         |         | 19 0.27 PS    |
| 169TM 20 | 0.637    | 13/2+    |       |       |       |         |         | 20 5.4 PS 4   |
| -----    |          |          |       |       |       |         |         |               |
| 169TM 21 |          |          |       |       |       | 0.647   | (7/2-)  | 21            |
| 169TM 22 | 0.691    | 15/2+    |       |       |       |         |         | 22 8.1 PS 4   |
| 169TM 23 |          |          |       |       |       | 0.719   | (7/2+)  | 23            |
| 169TM 24 |          |          |       | 0.725 | 13/2- |         |         | 24            |
| 169TM 25 |          |          |       |       |       | 0.741   | (13/2+) | 25            |
| 169TM 26 |          |          |       |       |       | 0.782   | (5/2+)  | 26            |
| 169TM 27 |          |          |       |       |       | 0.832   | (9/2+)  | 27            |
| 169TM 28 |          |          |       |       |       | 0.866   | (17/2-) | 28            |
| 169TM 29 |          |          |       |       |       | 0.878   | (7/2+)  | 29            |
| 169TM 30 |          |          |       | 0.884 | 15/2- |         |         | 30            |
| -----    |          |          |       |       |       |         |         |               |
| 169TM 31 |          |          |       |       |       | 0.885   | (11/2-) | 31            |
| 169TM 32 |          |          |       |       |       | 0.900   |         | 32            |
| 169TM 33 |          |          |       |       |       | 0.929   | (15/2+) | 33            |
| 169TM 34 |          |          |       |       |       | 0.938   |         | 34            |
| 169TM 35 |          |          |       |       |       | 0.964   | (11/2+) | 35            |
| 169TM 36 | 1.028    | 17/2+    |       |       |       |         |         | 36 1.91 PS 18 |
| 169TM 37 |          |          |       |       |       | 1.040   |         | 37            |

|       |    |  |       |       |       |       |       |            |  |               |
|-------|----|--|-------|-------|-------|-------|-------|------------|--|---------------|
| 169TM | 38 |  |       |       |       |       | 1.059 |            |  | 38            |
| 169TM | 39 |  |       |       | 1.064 | 17/2- |       |            |  | 39            |
| 169TM | 40 |  | 1.104 | 19/2+ |       |       |       |            |  | 40 1.94 PS 21 |
| ----- |    |  |       |       |       |       |       |            |  |               |
| 169TM | 41 |  |       |       |       |       | 1.113 |            |  | 41            |
| 169TM | 42 |  |       |       |       |       | 1.136 |            |  | 42            |
| 169TM | 43 |  |       |       |       |       | 1.141 | (17/2+)    |  | 43            |
| 169TM | 44 |  |       |       |       |       | 1.152 | (11/2-)    |  | 44            |
| 169TM | 45 |  |       |       |       |       | 1.189 | (15/2-)    |  | 45            |
| 169TM | 46 |  |       |       |       |       | 1.190 | +          |  | 46            |
| 169TM | 47 |  |       |       |       |       | 1.218 | (21/2-)    |  | 47            |
| 169TM | 48 |  |       |       |       |       | 1.223 |            |  | 48            |
| 169TM | 49 |  |       |       |       |       | 1.243 |            |  | 49            |
| 169TM | 50 |  |       |       | 1.262 | 19/2- |       |            |  | 50            |
| ----- |    |  |       |       |       |       |       |            |  |               |
| 169TM | 51 |  |       |       |       |       | 1.301 | (15/2+)    |  | 51            |
| 169TM | 52 |  | 1.372 | 1/2+  |       |       |       |            |  | 52            |
| 169TM | 53 |  |       |       |       |       | 1.372 | (19/2+)    |  | 53            |
| 169TM | 54 |  |       |       |       |       | 1.400 |            |  | 54            |
| 169TM | 55 |  |       |       | 1.483 | 21/2- |       |            |  | 55            |
| 169TM | 56 |  | 1.498 | 21/2+ |       |       |       |            |  | 56 0.87 PS 9  |
| 169TM | 57 |  |       |       |       |       | 1.511 | (1/2,3/2)+ |  | 57            |
| 169TM | 58 |  |       |       |       |       | 1.515 |            |  | 58            |
| 169TM | 59 |  |       |       |       |       | 1.528 | (1/2,3/2)+ |  | 59            |
| 169TM | 60 |  |       |       |       |       | 1.548 | (19/2-)    |  | 60            |
| ----- |    |  |       |       |       |       |       |            |  |               |
| 169TM | 61 |  |       |       |       |       | 1.598 | (23/2+)    |  | 61            |
| 169TM | 62 |  |       |       |       |       | 1.625 | (21/2+)    |  | 62            |
| 169TM | 63 |  |       |       |       |       | 1.658 | (25/2-)    |  | 63            |
| 169TM | 64 |  |       |       | 1.717 | 23/2- |       |            |  | 64            |
| 169TM | 65 |  |       |       |       |       | 1.865 | (1/2,3/2)+ |  | 65            |
| 169TM | 66 |  |       |       |       |       | 1.911 | (1/2,3/2)+ |  | 66            |
| 169TM | 67 |  |       |       |       |       | 1.922 | (1/2,3/2)+ |  | 67            |
| 169TM | 68 |  |       |       |       |       | 1.964 | (1/2,3/2)  |  | 68            |
| 169TM | 69 |  |       |       |       |       | 1.978 | (1/2,3/2)  |  | 69            |
| 169TM | 70 |  |       |       |       |       | 1.992 | (1/2,3/2)+ |  | 70            |
| ----- |    |  |       |       |       |       |       |            |  |               |
| 169TM | 71 |  |       |       |       |       | 2.076 | (1/2,3/2)+ |  | 71            |
| 169TM | 72 |  |       |       |       |       | 2.169 | (1/2,3/2)+ |  | 72            |
| 169TM | 73 |  |       |       |       |       | 2.191 | (1/2,3/2)  |  | 73            |
| 169TM | 74 |  |       |       |       |       | 2.215 | (1/2,3/2)  |  | 74            |
| 169TM | 75 |  |       |       |       |       | 2.236 | (1/2,3/2)+ |  | 75            |
| 169TM | 76 |  |       |       |       |       | 2.263 | (1/2,3/2)+ |  | 76            |
| 169TM | 77 |  |       |       |       |       | 2.294 | (1/2,3/2)  |  | 77            |
| 169TM | 78 |  |       |       |       |       | 2.306 | (1/2,3/2)  |  | 78            |
| 169TM | 79 |  |       |       |       |       | 2.312 | (1/2,3/2)+ |  | 79            |
| 169TM | 80 |  |       |       |       |       | 2.387 | (1/2,3/2)  |  | 80            |
| ----- |    |  |       |       |       |       |       |            |  |               |
| 169TM | 81 |  |       |       |       |       | 2.456 | (1/2,3/2)  |  | 81            |
| 169TM | 82 |  |       |       |       |       | 2.466 | (1/2,3/2)  |  | 82            |

|           |  |  |  |       |            |     |
|-----------|--|--|--|-------|------------|-----|
| 169TM 83  |  |  |  | 2.492 | (1/2,3/2)+ | 83  |
| 169TM 84  |  |  |  | 2.553 | (1/2,3/2)  | 84  |
| 169TM 85  |  |  |  | 2.571 | (1/2,3/2)  | 85  |
| 169TM 86  |  |  |  | 2.599 | (1/2,3/2)+ | 86  |
| 169TM 87  |  |  |  | 2.603 | (1/2,3/2)  | 87  |
| 169TM 88  |  |  |  | 2.687 | (1/2,3/2)  | 88  |
| 169TM 89  |  |  |  | 2.749 | (1/2,3/2)+ | 89  |
| 169TM 90  |  |  |  | 2.756 | (1/2,3/2)  | 90  |
| -----     |  |  |  |       |            |     |
| 169TM 91  |  |  |  | 2.769 | (1/2,3/2)+ | 91  |
| 169TM 92  |  |  |  | 2.786 | (1/2,3/2)  | 92  |
| 169TM 93  |  |  |  | 2.814 | (1/2,3/2)  | 93  |
| 169TM 94  |  |  |  | 2.819 | (1/2,3/2)  | 94  |
| 169TM 95  |  |  |  | 2.843 | (1/2,3/2)  | 95  |
| 169TM 96  |  |  |  | 2.861 | (1/2,3/2)+ | 96  |
| 169TM 97  |  |  |  | 2.943 | (1/2,3/2)+ | 97  |
| 169TM 98  |  |  |  | 2.996 | (1/2,3/2)+ | 98  |
| 169TM 99  |  |  |  | 3.128 | (1/2,3/2)  | 99  |
| 169TM 100 |  |  |  | 3.176 | (1/2,3/2)  | 100 |
| -----     |  |  |  |       |            |     |
| 169TM 101 |  |  |  | 3.185 | (1/2,3/2)  | 101 |
| 169TM 102 |  |  |  | 3.188 | (1/2,3/2)  | 102 |
| 169TM 103 |  |  |  | 3.191 | (1/2,3/2)+ | 103 |
| 169TM 104 |  |  |  | 3.200 | (1/2,3/2)+ | 104 |
| 169TM 105 |  |  |  | 3.205 | (1/2,3/2)+ | 105 |
| 169TM 106 |  |  |  | 3.255 | (1/2,3/2)  | 106 |
| 169TM 107 |  |  |  | 3.274 | (1/2,3/2)+ | 107 |
| 169TM 108 |  |  |  | 3.286 | (1/2,3/2)+ | 108 |
| 169TM 109 |  |  |  | 3.300 | (1/2,3/2)+ | 109 |
| 169TM 110 |  |  |  | 3.308 | (1/2,3/2)  | 110 |
| -----     |  |  |  |       |            |     |
| 169TM 111 |  |  |  | 3.341 | (1/2,3/2)+ | 111 |
| 169TM 112 |  |  |  | 3.376 | (1/2,3/2)+ | 112 |
| 169TM 113 |  |  |  | 3.384 | (1/2,3/2)  | 113 |
| 169TM 114 |  |  |  | 3.419 | (1/2,3/2)  | 114 |
| 169TM 115 |  |  |  | 3.436 | (1/2,3/2)  | 115 |
| 169TM 116 |  |  |  | 3.442 | (1/2,3/2)  | 116 |
| 169TM 117 |  |  |  | 3.459 | (1/2,3/2)  | 117 |
| 169TM 118 |  |  |  | 3.476 | (1/2,3/2)+ | 118 |
| 169TM 119 |  |  |  | 3.480 | (1/2,3/2)  | 119 |
| 169TM 120 |  |  |  | 3.497 | (1/2,3/2)  | 120 |
| -----     |  |  |  |       |            |     |
| 169TM 121 |  |  |  | 3.527 | (1/2,3/2)  | 121 |
| 169TM 122 |  |  |  | 3.539 | (1/2,3/2)  | 122 |
| 169TM 123 |  |  |  | 3.542 | (1/2,3/2)+ | 123 |
| 169TM 124 |  |  |  | 3.573 | (1/2,3/2)  | 124 |
| 169TM 125 |  |  |  | 3.613 | (1/2,3/2)  | 125 |
| 169TM 126 |  |  |  | 3.625 | (1/2,3/2)+ | 126 |
| 169TM 127 |  |  |  | 3.725 | (1/2,3/2)+ | 127 |
| 169TM 128 |  |  |  | 3.736 | (1/2,3/2)  | 128 |

|           |   |         |          |       |            |     |
|-----------|---|---------|----------|-------|------------|-----|
| 169TM 129 |   |         |          | 3.742 | (1/2,3/2)  | 129 |
| 169TM 130 |   |         |          | 3.766 | (1/2,3/2)  | 130 |
| -----     |   |         |          |       |            |     |
| 169TM 131 |   |         |          | 3.796 | (1/2,3/2)  | 131 |
| 169TM 132 |   |         |          | 3.807 | (1/2,3/2)  | 132 |
| 169TM 133 |   |         |          | 3.862 | (1/2,3/2)  | 133 |
| 169TM 134 |   |         |          | 3.875 | (1/2,3/2)  | 134 |
| 169TM 135 |   |         |          | 3.917 | (1/2,3/2)  | 135 |
| 169TM 136 |   |         |          | 3.950 | (1/2,3/2)  | 136 |
| 169TM 137 |   |         |          | 4.104 | (1/2,3/2)  | 137 |
| 169TM 138 |   |         |          | 4.190 | (1/2,3/2)  | 138 |
| 169TM 139 |   |         |          | 4.280 | (1/2,3/2)  | 139 |
| 169TM 140 |   |         |          | 4.765 | (1/2,3/2)  | 140 |
| -----     |   |         |          |       |            |     |
| 169TM 141 |   |         |          | 4.790 | (1/2,3/2)  | 141 |
| 169TM 142 |   |         |          | 4.853 | (1/2,3/2)  | 142 |
| 169TM 143 |   |         |          | 4.865 | (1/2,3/2)  | 143 |
| 169TM 144 |   |         |          | 4.954 | (1/2,3/2)  | 144 |
| 169TM 145 |   |         |          | 5.212 | (1/2,3/2)+ | 145 |
| 169TM 146 |   |         |          | 5.507 | (1/2,3/2)  | 146 |
| 169TM 147 |   |         |          | 5.530 | (1/2,3/2)+ | 147 |
| -----     |   |         |          |       |            |     |
| S-p       | = | 5.574   | ( 0.001) | ----- |            |     |
| 169TM 148 |   |         |          | 5.593 | (1/2,3/2)  | 148 |
| 169TM 149 |   |         |          | 5.598 | (1/2,3/2)  | 149 |
| -----     |   |         |          |       |            |     |
| S-p       | = | 5.574   | ( 0.001) | ----- |            |     |
| S-n       | = | 8.034   | ( 0.002) | ----- |            |     |
| S-2p      | = | 13.573  | ( 0.005) | ----- |            |     |
| S-2n      | = | 14.874  | ( 0.001) | ----- |            |     |
| S-alpha   | = | -1.198  | ( 0.001) | ----- |            |     |
| -----     |   |         |          |       |            |     |
| S+p       | = | -6.778  | ( 0.001) |       |            |     |
| S+n       | = | -6.592  | ( 0.001) |       |            |     |
| S+2p      | = | -11.132 | ( 0.002) |       |            |     |
| S+2n      | = | -14.078 | ( 0.001) |       |            |     |
| S+alpha   | = | 1.969   | ( 0.002) |       |            |     |
| -----     |   |         |          |       |            |     |
| gap p     | = | -1.204  | ( 0.001) |       |            |     |
| gap n     | = | 1.442   | ( 0.002) |       |            |     |
| gap 2p    | = | 2.441   | ( 0.006) |       |            |     |
| gap 2n    | = | 0.796   | ( 0.002) |       |            |     |
| gap alpha | = | 0.770   | ( 0.002) |       |            |     |