

$^{147}\text{Pm}$        $Z = 61$        $N = 86$       adopted link      ENSDF link

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

BE = 1217.802 ( 0.001) MeV

Qbeta- = 0.224 ( 0.002) MeV

|          | Energy T | J+       | J-          | J-other                | T1/2          |
|----------|----------|----------|-------------|------------------------|---------------|
| -----    |          |          |             |                        |               |
| S-alpha= | -1.601   | ( 0.002) | -----       |                        |               |
| 147PM 1  | 0.000    | 7/2+     |             |                        | 1 2.6234 Y 4  |
| 147PM 2  | 0.091    | 5/2+     |             |                        | 2 2.51 NS 2   |
| 147PM 3  |          |          |             | 0.340 3/2+,5/2+        | 3             |
| 147PM 4  |          |          |             | 0.380 3/2+,5/2+        | 4             |
| 147PM 5  | 0.408    | 9/2+     |             |                        | 5             |
| 147PM 6  | 0.411    | 3/2+     |             |                        | 6 0.139 NS 14 |
| 147PM 7  | 0.489    | 7/2+     |             |                        | 7             |
| 147PM 8  | 0.531    | 5/2+     |             |                        | 8 0.093 NS 20 |
| 147PM 9  | 0.633    | 1/2+     |             |                        | 9             |
| 147PM 10 |          |          |             | 0.641 (5/2)+           | 10            |
| -----    |          |          |             |                        |               |
| 147PM 11 |          |          | 0.649 11/2- |                        | 11 27 NS 3    |
| 147PM 12 | 0.667    | 11/2+    |             |                        | 12            |
| 147PM 13 | 0.680    | 7/2+     |             |                        | 13            |
| 147PM 14 | 0.686    | 5/2+     |             |                        | 14 0.25 NS 10 |
| 147PM 15 |          |          |             | 0.731 (9/2)+           | 15            |
| 147PM 16 |          |          |             | 0.732 (3/2+,5/2+)      | 16            |
| 147PM 17 |          |          |             | 0.806 3/2+,5/2+        | 17            |
| 147PM 18 |          |          |             | 0.807 5/2-,7/2-        | 18            |
| 147PM 19 |          |          |             | 0.865 (7/2-,9/2-)      | 19            |
| 147PM 20 |          |          |             | 0.882 3/2+,5/2+        | 20            |
| -----    |          |          |             |                        |               |
| 147PM 21 | 0.932    | 1/2+     |             |                        | 21            |
| 147PM 22 |          |          |             | 0.940 3/2+,5/2+        | 22            |
| 147PM 23 |          |          | 0.970 11/2- |                        | 23            |
| 147PM 24 |          |          |             | 0.975 (7/2-)           | 24            |
| 147PM 25 |          |          |             | 0.984 (5/2,9/2)        | 25            |
| 147PM 26 |          |          |             | 1.041 3/2+,5/2+        | 26            |
| 147PM 27 |          |          |             | 1.049 (5/2+:9/2+)      | 27            |
| 147PM 28 |          |          | 1.051 15/2- |                        | 28            |
| 147PM 29 | 1.072    | 13/2+    |             |                        | 29            |
| 147PM 30 |          |          |             | 1.077 (11/2)+          | 30            |
| -----    |          |          |             |                        |               |
| 147PM 31 | 1.100    | 1/2+     |             |                        | 31            |
| 147PM 32 |          |          |             | 1.119 (7/2+,9/2+,11/2) | 32+           |
| 147PM 33 |          |          |             | 1.145 (3/2+,5/2+)      | 33            |
| 147PM 34 |          |          | 1.159 13/2- |                        | 34            |
| 147PM 35 |          |          |             | 1.186                  | 35            |
| 147PM 36 |          |          |             | 1.214 (3/2,5/2,7/2)-   | 36            |

|          |  |       |       |       |       |       |               |    |
|----------|--|-------|-------|-------|-------|-------|---------------|----|
| 147PM 37 |  |       |       |       |       | 1.246 | (11/2,13/2)-  | 37 |
| 147PM 38 |  |       |       |       |       | 1.313 |               | 38 |
| 147PM 39 |  |       |       |       |       | 1.325 |               | 39 |
| 147PM 40 |  |       |       |       |       | 1.346 | 3/2+,5/2+     | 40 |
| -----    |  |       |       |       |       |       |               |    |
| 147PM 41 |  |       |       |       |       | 1.350 | 9/2-,11/2-    | 41 |
| 147PM 42 |  | 1.377 | 1/2+  |       |       |       |               | 42 |
| 147PM 43 |  |       |       |       |       | 1.382 |               | 43 |
| 147PM 44 |  | 1.393 | 15/2+ |       |       |       |               | 44 |
| 147PM 45 |  |       |       | 1.406 | 15/2- |       |               | 45 |
| 147PM 46 |  |       |       |       |       | 1.422 |               | 46 |
| 147PM 47 |  |       |       |       |       | 1.434 | (13/2+)       | 47 |
| 147PM 48 |  |       |       |       |       | 1.440 |               | 48 |
| 147PM 49 |  |       |       |       |       | 1.477 | (7/2+)        | 49 |
| 147PM 50 |  |       |       |       |       | 1.505 |               | 50 |
| -----    |  |       |       |       |       |       |               |    |
| 147PM 51 |  |       |       |       |       | 1.546 |               | 51 |
| 147PM 52 |  |       |       |       |       | 1.580 |               | 52 |
| 147PM 53 |  |       |       |       |       | 1.588 | 3/2+,5/2+     | 53 |
| 147PM 54 |  |       |       |       |       | 1.596 | 11/2-,9/2-    | 54 |
| 147PM 55 |  |       |       | 1.628 | 19/2- |       |               | 55 |
| 147PM 56 |  |       |       |       |       | 1.630 | 3/2+,5/2+     | 56 |
| 147PM 57 |  |       |       |       |       | 1.643 |               | 57 |
| 147PM 58 |  |       |       |       |       | 1.656 | (3/2+,5/2+)   | 58 |
| 147PM 59 |  |       |       | 1.659 | 17/2- |       |               | 59 |
| 147PM 60 |  |       |       |       |       | 1.667 | 11/2-,9/2-    | 60 |
| -----    |  |       |       |       |       |       |               |    |
| 147PM 61 |  |       |       |       |       | 1.699 | (15/2+,17/2-) | 61 |
| 147PM 62 |  |       |       |       |       | 1.703 | (11/2-)       | 62 |
| 147PM 63 |  |       |       |       |       | 1.723 |               | 63 |
| 147PM 64 |  |       |       |       |       | 1.788 | 3/2+,5/2+     | 64 |
| 147PM 65 |  |       |       |       |       | 1.795 | (15/2-,17/2-) | 65 |
| 147PM 66 |  |       |       |       |       | 1.805 |               | 66 |
| 147PM 67 |  | 1.832 | 17/2+ |       |       |       |               | 67 |
| 147PM 68 |  |       |       |       |       | 1.832 |               | 68 |
| 147PM 69 |  |       |       |       |       | 1.872 |               | 69 |
| 147PM 70 |  |       |       |       |       | 1.892 | (1/2+)        | 70 |
| -----    |  |       |       |       |       |       |               |    |
| 147PM 71 |  |       |       |       |       | 1.910 |               | 71 |
| 147PM 72 |  | 1.930 | 1/2+  |       |       |       |               | 72 |
| 147PM 73 |  |       |       |       |       | 1.938 |               | 73 |
| 147PM 74 |  |       |       | 1.985 | 19/2- |       |               | 74 |
| 147PM 75 |  |       |       |       |       | 2.011 | (3/2+,5/2+)   | 75 |
| 147PM 76 |  |       |       |       |       | 2.025 |               | 76 |
| 147PM 77 |  |       |       |       |       | 2.035 |               | 77 |
| 147PM 78 |  |       |       |       |       | 2.069 | (7/2+)        | 78 |
| 147PM 79 |  |       |       |       |       | 2.079 | 19/2(+)       | 79 |
| 147PM 80 |  |       |       |       |       | 2.108 | (3/2+,5/2+)   | 80 |
| -----    |  |       |       |       |       |       |               |    |
| 147PM 81 |  |       |       |       |       | 2.159 |               | 81 |

|                      |  |       |       |       |               |     |
|----------------------|--|-------|-------|-------|---------------|-----|
| 147PM 82             |  |       |       | 2.180 |               | 82  |
| 147PM 83             |  |       |       | 2.201 |               | 83  |
| 147PM 84             |  |       |       | 2.220 |               | 84  |
| 147PM 85             |  |       |       | 2.251 | (19/2+)       | 85  |
| 147PM 86             |  |       |       | 2.308 | (21/2-)       | 86  |
| 147PM 87             |  | 2.330 | 23/2- |       |               | 87  |
| 147PM 88             |  |       |       | 2.405 | (23/2-)       | 88  |
| 147PM 89             |  |       |       | 2.460 | (21/2+)       | 89  |
| 147PM 90             |  |       |       | 2.549 | (23/2-)       | 90  |
| -----                |  |       |       |       |               |     |
| 147PM 91             |  |       |       | 2.623 | (23/2+)       | 91  |
| 147PM 92             |  |       |       | 2.686 | (25/2-)       | 92  |
| 147PM 93             |  |       |       | 2.707 | (23/2-)       | 93  |
| 147PM 94             |  |       |       | 2.783 | (23/2+)       | 94  |
| 147PM 95             |  |       |       | 2.850 | (27/2-)       | 95  |
| 147PM 96             |  |       |       | 2.899 | (25/2+)       | 96  |
| 147PM 97             |  |       |       | 3.051 | (25/2+)       | 97  |
| 147PM 98             |  |       |       | 3.052 | (25/2-)       | 98  |
| 147PM 99             |  | 3.124 | 27/2- |       |               | 99  |
| 147PM 100            |  |       |       | 3.277 | (27/2+)       | 100 |
| -----                |  |       |       |       |               |     |
| 147PM 101            |  |       |       | 3.336 | (27/2-)       | 101 |
| 147PM 102            |  |       |       | 3.358 | (29/2+)       | 102 |
| 147PM 103            |  |       |       | 3.405 | (29/2-)       | 103 |
| 147PM 104            |  |       |       | 3.464 | (31/2-)       | 104 |
| 147PM 105            |  |       |       | 3.611 | (27/2:31/2-)  | 105 |
| 147PM 106            |  |       |       | 3.687 | (31/2+)       | 106 |
| 147PM 107            |  |       |       | 3.695 | (33/2+)       | 107 |
| 147PM 108            |  |       |       | 3.840 | (33/2-)       | 108 |
| 147PM 109            |  |       |       | 3.949 | (31/2-)       | 109 |
| 147PM 110            |  |       |       | 4.000 | (9/2+)        | 110 |
| -----                |  |       |       |       |               |     |
| 147PM 111            |  |       |       | 4.133 | (29/2:33/2+)  | 111 |
| 147PM 112            |  |       |       | 4.229 | (35/2-)       | 112 |
| 147PM 113            |  |       |       | 4.287 | (35/2+)       | 113 |
| 147PM 114            |  |       |       | 4.321 | (37/2+)       | 114 |
| 147PM 115            |  |       |       | 4.512 | (37/2-)       | 115 |
| 147PM 116            |  |       |       | 4.858 | (39/2-)       | 116 |
| 147PM 117            |  |       |       | 5.013 | (41/2+)       | 117 |
| 147PM 118            |  |       |       | 5.021 | (39/2+)       | 118 |
| 147PM 119            |  |       |       | 5.218 | (39/2+,41/2+) | 119 |
| -----                |  |       |       |       |               |     |
| S-p = 5.405 ( 0.002) |  |       |       |       |               |     |
| 147PM 120            |  |       |       | 5.458 | (37/2:41/2+)  | 120 |
| -----                |  |       |       |       |               |     |
| 147PM 121            |  |       |       | 5.645 | (45/2+)       | 121 |
| 147PM 122            |  |       |       | 5.808 | (43/2+)       | 122 |
| 147PM 123            |  |       |       | 5.985 | (43/2)        | 123 |
| 147PM 124            |  |       |       | 6.130 | (41/2:45/2+)  | 124 |
| 147PM 125            |  |       |       | 6.186 | (43/2:47/2+)  | 125 |
| 147PM 126            |  |       |       | 6.378 | (47/2+)       | 126 |

|           |   |       |          |       |         |       |
|-----------|---|-------|----------|-------|---------|-------|
| 147PM 127 |   |       |          | 6.687 | (49/2+) | 127   |
| 147PM 128 |   |       |          | 7.004 | (51/2+) | 128   |
| 147PM 129 |   |       |          | 7.554 | (51/2+) | 129   |
| S-n       | = | 7.659 | ( 0.004) | ----- |         |       |
| 147PM 130 |   |       |          | 7.780 |         | 130   |
| -----     |   |       |          |       |         | ----- |
| 147PM 131 |   |       |          | 7.977 |         | 131   |

  

|         |   |        |          |       |  |  |
|---------|---|--------|----------|-------|--|--|
| S-p     | = | 5.405  | ( 0.002) | ----- |  |  |
| S-n     | = | 7.659  | ( 0.004) | ----- |  |  |
| S-2p    | = | 13.994 | ( 0.007) | ----- |  |  |
| S-2n    | = | 13.917 | ( 0.003) | ----- |  |  |
| S-alpha | = | -1.601 | ( 0.002) | ----- |  |  |

  

|         |   |         |          |
|---------|---|---------|----------|
| S+p     | = | -7.583  | ( 0.002) |
| S+n     | = | -5.895  | ( 0.006) |
| S+2p    | = | -11.977 | ( 0.004) |
| S+2n    | = | -13.165 | ( 0.003) |
| S+alpha | = | 1.964   | ( 0.002) |

  

|           |   |        |          |
|-----------|---|--------|----------|
| gap p     | = | -2.178 | ( 0.003) |
| gap n     | = | 1.763  | ( 0.007) |
| gap 2p    | = | 2.016  | ( 0.008) |
| gap 2n    | = | 0.752  | ( 0.004) |
| gap alpha | = | 0.363  | ( 0.003) |