

$^{33}\text{P}$        $Z = 15$        $N = 18$       [link to full NNDC output](#)

Based on ENSDF from Dec 2018, and mass evaluation from 2016

BE = 280.956 ( 0.001) MeV

Qbeta- = 0.249 ( 0.001) MeV

|        | Energy T | J+   | J-    | J-other               | T1/2          |
|--------|----------|------|-------|-----------------------|---------------|
| 33P 1  | 0.000    | 1/2+ |       |                       | 1 25.35 D 11  |
| 33P 2  | 1.432    | 3/2+ |       |                       | 2 0.43 PS 7   |
| 33P 3  | 1.848    | 5/2+ |       |                       | 3 0.77 PS 11  |
| 33P 4  | 2.538    | 3/2+ |       |                       | 4 35 FS 7     |
| 33P 5  | 3.275    | 3/2+ |       |                       | 5 0.14 PS 3   |
| 33P 6  | 3.491    | 5/2+ |       |                       | 6 58 FS 12    |
| 33P 7  | 3.628    | 7/2+ |       |                       | 7 0.14 PS 3   |
| 33P 8  |          |      |       | 3.990                 | 8             |
| 33P 9  | 4.048    | 5/2+ |       |                       | 9 62 FS 21    |
| 33P 10 | 4.194    | 5/2+ |       |                       | 10 104 FS 35  |
| 33P 11 |          |      | 4.226 | 7/2-                  | 11 0.32 PS 7  |
| 33P 12 |          |      |       | 4.856 (3/2,5/2)       | 12 76 FS LT   |
| 33P 13 | 5.049    | 5/2+ |       |                       | 13 62 FS LT   |
| 33P 14 |          |      |       | 5.191 (3/2+,5/2)      | 14 125 FS LT  |
| 33P 15 |          |      |       | 5.207                 | 15            |
| 33P 16 |          |      |       | 5.221                 | 16            |
| 33P 17 |          |      |       | 5.235                 | 17            |
| 33P 18 |          |      |       | 5.411 (3/2,5/2,7/2+)  | 18 76 FS LT   |
| 33P 19 |          |      | 5.453 | 9/2-                  | 19 24 PS 5    |
| 33P 20 |          |      |       | 5.498 (3/2-:9/2+)     | 20 62 FS LT   |
| 33P 21 |          |      |       | 5.549 (1/2+:9/2+)     | 21 330 FS 120 |
| 33P 22 |          |      |       | 5.558 3/2             | 22 56 FS LT   |
| 33P 23 |          |      | 5.638 | 11/2-                 | 23 9.7 PS 14  |
| 33P 24 | 5.674    | 1/2+ |       |                       | 24 49 FS LT   |
| 33P 25 |          |      |       | 5.731 3/2             | 25            |
| 33P 26 |          |      |       | 5.785 (1/2,3/2,5/2+)  | 26 35 FS LT   |
| 33P 27 |          |      |       | 5.816 (3/2+,5/2,7/2+) | 27 75 FS 40   |
| 33P 28 |          |      |       | 5.931                 | 28            |
| 33P 29 |          |      |       | 5.970 (1/2,3/2,5/2+)  | 29 56 FS LT   |
| 33P 30 |          |      |       | 6.115 (1/2+:9/2+)     | 30 0.14 PS LT |
| 33P 31 |          |      |       | 6.124                 | 31 55 FS 40   |
| 33P 32 |          |      |       | 6.182                 | 32 60 FS LT   |
| 33P 33 |          |      |       | 6.327                 | 33            |
| 33P 34 | 6.432    | 5/2+ |       |                       | 34            |
| 33P 35 |          |      |       | 6.509                 | 35            |
| 33P 36 |          |      |       | 6.559                 | 36            |
| 33P 37 | 6.820    | 5/2+ |       |                       | 37            |

|       |    |  |        |   |        |       |        |                 |     |
|-------|----|--|--------|---|--------|-------|--------|-----------------|-----|
| 33P   | 38 |  |        |   |        |       | 6.938  | 15/2(-)         | 38  |
| 33P   | 39 |  |        |   |        |       | 6.952  |                 | 39  |
| 33P   | 40 |  | 7.146  |   | 5/2+   |       |        |                 | 40  |
| ----- |    |  |        |   |        |       |        |                 |     |
| 33P   | 41 |  |        |   |        |       | 7.310  | (9/2,11/2,13/2+ | 41) |
| 33P   | 42 |  |        |   |        |       | 7.564  |                 | 42  |
| 33P   | 43 |  |        |   |        |       | 7.967  | (17/2+)         | 43  |
| 33P   | 44 |  |        |   |        |       | 8.080  | (9/2,11/2)      | 44  |
| 33P   | 45 |  |        |   |        |       | 8.510  |                 | 45  |
| 33P   | 46 |  |        |   |        |       | 8.850  | (3/2+,5/2,7/2)  | 46  |
| S-p   | =  |  | 9.549  | ( | 0.001) | ----- |        |                 |     |
| 33P   | 47 |  |        |   |        |       | 9.940  | (1/2:11/2)      | 47  |
| S-n   | =  |  | 10.104 | ( | 0.001) | ----- |        |                 |     |
| 33P   | 48 |  |        |   |        |       | 10.120 | (1/2:13/2)      | 48  |

S-p = 9.549 ( 0.001)-----  
 S-n = 10.104 ( 0.001)-----  
 S-2p = 25.965 ( 0.002)-----  
 S-2n = 18.039 ( 0.001)-----  
 S-alpha= 10.554 ( 0.001)-----

S+p = -10.883 ( 0.001)  
 S+n = -6.283 ( 0.001)  
 S+2p = -17.254 ( 0.001)  
 S+2n = -14.663 ( 0.002)  
 S+alpha = -7.849 ( 0.001)

gap p = -1.335 ( 0.002)  
 gap n = 3.821 ( 0.002)  
 gap 2p = 8.710 ( 0.003)  
 gap 2n = 3.376 ( 0.002)  
 gap alpha = 2.705 ( 0.002)