

$^{42}\text{Sc}$        $Z = 21$        $N = 21$       [link to full NNDC output](#)

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

BE = 354.687 ( 0.000) MeV

Qbeta+ = 6.426 ( 0.000) MeV

|         | Energy T | J+ | J-       | J-other         | T1/2           |
|---------|----------|----|----------|-----------------|----------------|
| 42SC 1  | 0.000 1  | 0+ |          |                 | 1 680.79 MS 28 |
| 42SC 2  | 0.611 0  | 1+ |          |                 | 2 28 FS 12     |
| 42SC 3  | 0.616 0  | 7+ |          |                 | 3 61.7 S 4     |
| 42SC 4  | 1.491 0  | 3+ |          |                 | 4 31 PS 5      |
| 42SC 5  | 1.510 0  | 5+ |          |                 | 5 44 PS 8      |
| 42SC 6  | 1.586 1  | 2+ |          |                 | 6 54 FS 12     |
| 42SC 7  |          |    |          | 1.704           | 7              |
| 42SC 8  |          |    |          | 1.845 0 3(+)    | 8 3.5 NS LT    |
| 42SC 9  | 1.874 1  | 0+ |          |                 | 9 70 FS LT     |
| 42SC 10 | 1.888 0  | 1+ |          |                 | 10 42 FS LT    |
| 42SC 11 | 2.187 0  | 3+ |          |                 | 11 0.54 PS 24  |
| 42SC 12 | 2.223 0  | 1+ |          |                 | 12 87 FS 35    |
| 42SC 13 | 2.223 0  | 3+ |          |                 | 13 0.63 PS 35  |
| 42SC 14 | 2.269 0  | 2+ |          |                 | 14 70 FS GT    |
| 42SC 15 |          |    |          | 2.296 0 (1,2)   | 15             |
| 42SC 16 | 2.389    | 3+ |          |                 | 16             |
| 42SC 17 | 2.434 0  | 4+ |          |                 | 17 0.14 PS GT  |
| 42SC 18 | 2.455    | 1+ |          |                 | 18 0.18 PS 11  |
| 42SC 19 | 2.487 1  | 2+ |          |                 | 19 50 FS LT    |
| 42SC 20 |          |    |          | 2.507 (1,2,3)+  | 20             |
| 42SC 21 |          |    |          | 2.535 (1,2+)    | 21 0.66 PS 28  |
| 42SC 22 |          |    |          | 2.587 0 (2,4)   | 22             |
| 42SC 23 |          |    |          | 2.607 4(+)      | 23             |
| 42SC 24 |          |    |          | 2.652 0 (2+)    | 24 35 FS 21    |
| 42SC 25 |          |    |          | 2.669           | 25             |
| 42SC 26 |          |    |          | 2.726           | 26             |
| 42SC 27 |          |    |          | 2.795 (5+,6+)   | 27             |
| 42SC 28 | 2.816 1  | 4+ |          |                 | 28 35 FS 14    |
| 42SC 29 |          |    |          | 2.833 (2+,3,4+) | 29 0.21 PS 11  |
| 42SC 30 | 2.848    | 3+ |          |                 | 30 0.20 PS 13  |
| 42SC 31 |          |    |          | 2.883           | 31             |
| 42SC 32 | 2.910    | 4+ |          |                 | 32 0.8 PS GT   |
| 42SC 33 | 2.966    | 1+ |          |                 | 33             |
| 42SC 34 | 2.996    | 4+ |          |                 | 34 0.14 PS GT  |
| 42SC 35 |          |    | 3.023 4- |                 | 35             |
| 42SC 36 | 3.089    | 5+ |          |                 | 36 0.21 PS 4   |
| 42SC 37 |          |    |          | 3.146           | 37             |

|       |    |  |       |   |          |  |       |      |          |    |         |    |
|-------|----|--|-------|---|----------|--|-------|------|----------|----|---------|----|
| 42SC  | 38 |  |       |   |          |  | 3.166 |      |          | 38 |         |    |
| 42SC  | 39 |  |       |   |          |  | 3.175 | (5)+ |          | 39 |         |    |
| 42SC  | 40 |  |       |   |          |  | 3.224 | (5+) |          | 40 | 0.21 PS | GT |
| ----- |    |  |       |   |          |  |       |      |          |    |         |    |
| 42SC  | 41 |  |       |   |          |  | 3.238 | 1    | (5,6,7)+ | 41 |         |    |
| 42SC  | 42 |  | 3.285 |   | 7+       |  |       |      |          | 42 |         |    |
| 42SC  | 43 |  |       |   |          |  |       |      |          | 43 | 0.14 PS | GT |
| 42SC  | 44 |  |       |   |          |  |       |      |          | 44 | 35 FS   | LT |
| 42SC  | 45 |  | 3.348 |   | 1+       |  |       |      |          | 45 |         |    |
| 42SC  | 46 |  |       |   |          |  |       |      |          | 46 |         |    |
| 42SC  | 47 |  | 3.391 |   | 3+       |  |       |      |          | 47 | 62 FS   | 49 |
| 42SC  | 48 |  |       |   |          |  |       |      |          | 48 |         |    |
| 42SC  | 49 |  |       |   |          |  |       |      |          | 49 |         |    |
| 42SC  | 50 |  |       |   |          |  |       |      |          | 50 |         |    |
| ----- |    |  |       |   |          |  |       |      |          |    |         |    |
| 42SC  | 51 |  |       |   |          |  |       |      |          | 51 |         |    |
| 42SC  | 52 |  |       |   |          |  |       |      |          | 52 |         |    |
| 42SC  | 53 |  |       |   |          |  |       |      |          | 53 |         |    |
| 42SC  | 54 |  |       |   |          |  |       |      |          | 54 |         |    |
| 42SC  | 55 |  |       |   |          |  |       |      |          | 55 |         |    |
| 42SC  | 56 |  |       |   |          |  |       |      |          | 56 |         |    |
| 42SC  | 57 |  |       |   |          |  |       |      |          | 57 |         |    |
| 42SC  | 58 |  | 3.688 | 0 | 1+       |  |       |      |          | 58 | 28 FS   | LT |
| 42SC  | 59 |  |       |   |          |  |       |      |          | 59 |         |    |
| 42SC  | 60 |  |       |   |          |  |       |      |          | 60 |         |    |
| ----- |    |  |       |   |          |  |       |      |          |    |         |    |
| 42SC  | 61 |  |       |   |          |  |       |      |          | 61 | 70 FS   | GT |
| 42SC  | 62 |  |       |   |          |  |       |      |          | 62 |         |    |
| 42SC  | 63 |  |       |   |          |  |       |      |          | 63 |         |    |
| 42SC  | 64 |  | 3.797 |   | 3+       |  |       |      |          | 64 |         |    |
| 42SC  | 65 |  |       |   |          |  |       |      |          | 65 |         |    |
| 42SC  | 66 |  | 3.866 |   | 1+       |  |       |      |          | 66 |         |    |
| 42SC  | 67 |  |       |   |          |  |       |      |          | 67 |         |    |
| 42SC  | 68 |  |       |   |          |  |       |      |          | 68 |         |    |
| 42SC  | 69 |  |       |   |          |  |       |      |          | 69 |         |    |
| 42SC  | 70 |  |       |   |          |  |       |      |          | 70 |         |    |
| ----- |    |  |       |   |          |  |       |      |          |    |         |    |
| 42SC  | 71 |  | 3.934 | 0 | 3+       |  |       |      |          | 71 | 52 FS   | LT |
| 42SC  | 72 |  |       |   |          |  |       |      |          | 72 |         |    |
| 42SC  | 73 |  |       |   |          |  |       |      |          | 73 | 14 FS   | LT |
| 42SC  | 74 |  |       |   |          |  |       |      |          | 74 |         |    |
| 42SC  | 75 |  |       |   |          |  |       |      |          | 75 |         |    |
| 42SC  | 76 |  |       |   |          |  |       |      |          | 76 | 0.5 NS  | AP |
| 42SC  | 77 |  |       |   |          |  |       |      |          | 77 |         |    |
| 42SC  | 78 |  |       |   |          |  |       |      |          | 78 |         |    |
| 42SC  | 79 |  |       |   |          |  |       |      |          | 79 |         |    |
| 42SC  | 80 |  |       |   |          |  |       |      |          | 80 |         |    |
| ----- |    |  |       |   |          |  |       |      |          |    |         |    |
| 42SC  | 81 |  |       |   |          |  |       |      |          | 81 |         |    |
| S-p   | =  |  | 4.272 |   | ( 0.000) |  |       |      |          |    |         |    |

|          |  |       |          |       |          |     |
|----------|--|-------|----------|-------|----------|-----|
| 42SC 82  |  |       |          | 4.274 |          | 82  |
| 42SC 83  |  |       |          | 4.289 | (2:5)+   | 83  |
| 42SC 84  |  |       |          | 4.370 |          | 84  |
| 42SC 85  |  |       |          | 4.391 | (1,2,3)+ | 85  |
| 42SC 86  |  |       |          | 4.410 | (2:5)+   | 86  |
| 42SC 87  |  |       |          | 4.469 | (2,3)+   | 87  |
| 42SC 88  |  |       |          | 4.548 | (2:5)+   | 88  |
| 42SC 89  |  |       |          | 4.582 | (2:5)+   | 89  |
| 42SC 90  |  |       |          | 4.604 | (2:5)(+) | 90  |
| -----    |  |       |          |       |          |     |
| 42SC 91  |  |       |          | 4.665 | (2:5)+   | 91  |
| 42SC 92  |  |       |          | 4.704 |          | 92  |
| 42SC 93  |  |       |          | 4.725 | (2:5)+   | 93  |
| 42SC 94  |  |       |          | 4.755 | (3,4,5)+ | 94  |
| 42SC 95  |  |       |          | 4.786 |          | 95  |
| 42SC 96  |  |       |          | 4.808 |          | 96  |
| 42SC 97  |  |       |          | 4.828 | (2:5)+   | 97  |
| 42SC 98  |  |       |          | 4.875 | (1,2,3)+ | 98  |
| 42SC 99  |  |       |          | 4.883 | (8+)     | 99  |
| 42SC 100 |  | 4.928 | 1+       |       |          | 100 |
| -----    |  |       |          |       |          |     |
| 42SC 101 |  |       |          | 4.971 |          | 101 |
| 42SC 102 |  |       |          | 4.992 | 9(+)     | 102 |
| 42SC 103 |  |       |          | 5.001 | (1,2,3)+ | 103 |
| 42SC 104 |  |       |          | 5.028 |          | 104 |
| 42SC 105 |  |       |          | 5.048 | (3,4,5)+ | 105 |
| 42SC 106 |  |       |          | 5.084 |          | 106 |
| 42SC 107 |  |       |          | 5.120 | (1,2,3)+ | 107 |
| 42SC 108 |  | 5.140 | 1+       |       |          | 108 |
| 42SC 109 |  |       |          | 5.305 |          | 109 |
| 42SC 110 |  |       |          | 5.326 |          | 110 |
| -----    |  |       |          |       |          |     |
| 42SC 111 |  |       |          | 5.352 |          | 111 |
| 42SC 112 |  |       |          | 5.370 |          | 112 |
| 42SC 113 |  |       |          | 5.380 |          | 113 |
| 42SC 114 |  |       |          | 5.402 | (7+)     | 114 |
| 42SC 115 |  |       |          | 5.436 |          | 115 |
| 42SC 116 |  |       |          | 5.451 | 11(-)    | 116 |
| 42SC 117 |  |       |          | 5.475 |          | 117 |
| 42SC 118 |  |       |          | 5.507 | 8(+)     | 118 |
| 42SC 119 |  |       |          | 5.520 |          | 119 |
| 42SC 120 |  |       |          | 5.572 |          | 120 |
| -----    |  |       |          |       |          |     |
| 42SC 121 |  |       |          | 5.635 | (2:5)+   | 121 |
| 42SC 122 |  |       |          | 5.651 | (2:5)+   | 122 |
| 42SC 123 |  |       |          | 5.686 | (1+)     | 123 |
| 42SC 124 |  | 5.716 | 1+       |       |          | 124 |
| S-alpha= |  | 5.745 | ( 0.000) | ----- |          |     |
| 42SC 125 |  |       |          | 5.771 |          | 125 |
| 42SC 126 |  |       |          | 5.810 |          | 126 |

|          |       |    |  |       |           |     |
|----------|-------|----|--|-------|-----------|-----|
| 42SC 127 |       |    |  | 5.865 | (2:5)(+)  | 127 |
| 42SC 128 |       |    |  | 5.963 | (9+)      | 128 |
| 42SC 129 |       |    |  | 5.966 | (2:5)(+)  | 129 |
| 42SC 130 |       |    |  | 5.996 | (3,4)+    | 130 |
| -----    |       |    |  |       |           |     |
| 42SC 131 |       |    |  | 6.011 |           | 131 |
| 42SC 132 |       |    |  | 6.076 | (2+,3,4+) | 132 |
| 42SC 133 |       |    |  | 6.090 |           | 133 |
| 42SC 134 |       |    |  | 6.118 | (8+)      | 134 |
| 42SC 135 |       |    |  | 6.174 | (3+,4+)   | 135 |
| 42SC 136 |       |    |  | 6.253 | (3+,4)    | 136 |
| 42SC 137 | 6.327 | 1+ |  |       |           | 137 |
| 42SC 138 |       |    |  | 6.364 |           | 138 |
| 42SC 139 |       |    |  | 6.737 |           | 139 |
| 42SC 140 |       |    |  | 6.824 | (10+)     | 140 |
| -----    |       |    |  |       |           |     |
| 42SC 141 |       |    |  | 6.921 | 11(+)     | 141 |
| 42SC 142 |       |    |  | 7.068 |           | 142 |
| 42SC 143 |       |    |  | 7.129 |           | 143 |
| 42SC 144 |       |    |  | 7.184 | 10(+)     | 144 |
| 42SC 145 |       |    |  | 7.261 |           | 145 |
| 42SC 146 |       |    |  | 7.295 |           | 146 |
| 42SC 147 |       |    |  | 7.307 | (11+)     | 147 |
| 42SC 148 |       |    |  | 7.418 |           | 148 |
| 42SC 149 |       |    |  | 7.491 |           | 149 |
| 42SC 150 |       |    |  | 7.586 |           | 150 |
| -----    |       |    |  |       |           |     |
| 42SC 151 |       |    |  | 7.676 | 11(+)     | 151 |
| 42SC 152 |       |    |  | 7.678 |           | 152 |
| 42SC 153 |       |    |  | 7.776 |           | 153 |
| 42SC 154 |       |    |  | 7.884 |           | 154 |
| 42SC 155 |       |    |  | 7.923 |           | 155 |
| 42SC 156 |       |    |  | 7.974 |           | 156 |
| 42SC 157 |       |    |  | 8.094 | (10-)     | 157 |
| 42SC 158 |       |    |  | 8.105 | (1+)      | 158 |
| 42SC 159 |       |    |  | 8.182 |           | 159 |
| 42SC 160 |       |    |  | 8.205 |           | 160 |
| -----    |       |    |  |       |           |     |
| 42SC 161 |       |    |  | 8.251 |           | 161 |
| 42SC 162 |       |    |  | 8.292 |           | 162 |
| 42SC 163 |       |    |  | 8.338 |           | 163 |
| 42SC 164 |       |    |  | 8.373 |           | 164 |
| 42SC 165 |       |    |  | 8.400 |           | 165 |
| 42SC 166 |       |    |  | 8.492 |           | 166 |
| 42SC 167 |       |    |  | 8.540 |           | 167 |
| 42SC 168 |       |    |  | 8.732 | (1+)      | 168 |
| 42SC 169 |       |    |  | 8.798 | (13+)     | 169 |
| 42SC 170 |       |    |  | 8.810 |           | 170 |
| -----    |       |    |  |       |           |     |
| 42SC 171 |       |    |  | 8.854 |           | 171 |

|          |        |    |  |        |       |     |
|----------|--------|----|--|--------|-------|-----|
| 42SC 172 |        |    |  | 8.887  |       | 172 |
| 42SC 173 |        |    |  | 8.887  |       | 173 |
| 42SC 174 |        |    |  | 8.920  |       | 174 |
| 42SC 175 |        |    |  | 8.929  |       | 175 |
| 42SC 176 |        |    |  | 8.981  | (1+)  | 176 |
| 42SC 177 |        |    |  | 9.004  |       | 177 |
| 42SC 178 |        |    |  | 9.068  |       | 178 |
| 42SC 179 |        |    |  | 9.088  |       | 179 |
| 42SC 180 |        |    |  | 9.113  |       | 180 |
| -----    |        |    |  |        |       |     |
| 42SC 181 |        |    |  | 9.156  |       | 181 |
| 42SC 182 |        |    |  | 9.203  |       | 182 |
| 42SC 183 |        |    |  | 9.236  |       | 183 |
| 42SC 184 |        |    |  | 9.280  |       | 184 |
| 42SC 185 |        |    |  | 9.312  |       | 185 |
| 42SC 186 |        |    |  | 9.406  |       | 186 |
| 42SC 187 |        |    |  | 9.511  | (13+) | 187 |
| 42SC 188 |        |    |  | 9.565  |       | 188 |
| 42SC 189 |        |    |  | 9.611  |       | 189 |
| 42SC 190 |        |    |  | 9.620  | (12)  | 190 |
| -----    |        |    |  |        |       |     |
| 42SC 191 |        |    |  | 9.793  |       | 191 |
| 42SC 192 |        |    |  | 9.826  |       | 192 |
| 42SC 193 |        |    |  | 9.874  |       | 193 |
| 42SC 194 |        |    |  | 9.901  |       | 194 |
| 42SC 195 |        |    |  | 9.947  |       | 195 |
| 42SC 196 |        |    |  | 9.978  |       | 196 |
| 42SC 197 | 10.011 | 1+ |  |        |       | 197 |
| 42SC 198 |        |    |  | 10.013 | (13+) | 198 |
| 42SC 199 |        |    |  | 10.118 |       | 199 |
| 42SC 200 |        |    |  | 10.142 |       | 200 |
| -----    |        |    |  |        |       |     |
| 42SC 201 |        |    |  | 10.165 |       | 201 |
| 42SC 202 |        |    |  | 10.195 |       | 202 |
| 42SC 203 | 10.250 | 1+ |  |        |       | 203 |
| 42SC 204 |        |    |  | 10.271 |       | 204 |
| 42SC 205 | 10.338 | 1+ |  |        |       | 205 |
| 42SC 206 |        |    |  | 10.395 |       | 206 |
| 42SC 207 | 10.437 | 1+ |  |        |       | 207 |
| 42SC 208 |        |    |  | 10.451 | (13+) | 208 |
| 42SC 209 |        |    |  | 10.536 | (12-) | 209 |
| 42SC 210 |        |    |  | 10.561 | (1+)  | 210 |
| -----    |        |    |  |        |       |     |
| 42SC 211 |        |    |  | 10.583 | 13    | 211 |
| 42SC 212 |        |    |  | 10.695 |       | 212 |
| 42SC 213 |        |    |  | 10.735 |       | 213 |
| 42SC 214 |        |    |  | 10.809 |       | 214 |
| 42SC 215 |        |    |  | 10.939 |       | 215 |
| 42SC 216 |        |    |  | 11.070 |       | 216 |
| 42SC 217 |        |    |  | 11.180 |       | 217 |

|           |   |         |   |        |       |     |
|-----------|---|---------|---|--------|-------|-----|
| 42SC 218  |   |         |   | 11.220 |       | 218 |
| 42SC 219  |   |         |   | 11.260 |       | 219 |
| 42SC 220  |   |         |   | 11.400 |       | 220 |
| -----     |   |         |   |        |       |     |
| S-n       | = | 11.550  | ( | 0.000) |       |     |
| 42SC 221  |   |         |   | 11.620 |       | 221 |
| 42SC 222  |   |         |   | 11.810 |       | 222 |
| 42SC 223  |   |         |   | 11.830 | (1+)  | 223 |
| 42SC 224  |   |         |   | 11.853 | (15+) | 224 |
| 42SC 225  |   |         |   | 11.931 |       | 225 |
| 42SC 226  |   |         |   | 12.000 | (1+)  | 226 |
| 42SC 227  |   |         |   | 12.401 |       | 227 |
| 42SC 228  |   |         |   | 12.420 |       | 228 |
| 42SC 229  |   |         |   | 12.449 |       | 229 |
| 42SC 230  |   |         |   | 12.700 |       | 230 |
| -----     |   |         |   |        |       |     |
| 42SC 231  |   |         |   | 13.022 |       | 231 |
| 42SC 232  |   |         |   | 13.026 |       | 232 |
| 42SC 233  |   |         |   | 13.094 | (15)  | 233 |
| S-2p      | = | 13.164  | ( | 0.000) |       |     |
| 42SC 234  |   |         |   | 13.418 |       | 234 |
| 42SC 235  |   |         |   | 13.620 |       | 235 |
| 42SC 236  |   |         |   | 15.966 | (17)  | 236 |
| -----     |   |         |   |        |       |     |
| S-p       | = | 4.272   | ( | 0.000) |       |     |
| S-n       | = | 11.550  | ( | 0.000) |       |     |
| S-2p      | = | 13.164  | ( | 0.000) |       |     |
| S-2n      | = | 27.740  | ( | 0.003) |       |     |
| S-alpha   | = | 5.745   | ( | 0.000) |       |     |
| -----     |   |         |   |        |       |     |
| S+p       | = | -4.489  | ( | 0.007) |       |     |
| S+n       | = | -12.138 | ( | 0.002) |       |     |
| S+2p      | = | -6.573  | ( | 0.182) |       |     |
| S+2n      | = | -21.838 | ( | 0.002) |       |     |
| S+alpha   | = | -7.379  | ( | 0.000) |       |     |
| -----     |   |         |   |        |       |     |
| gap p     | = | -0.217  | ( | 0.007) |       |     |
| gap n     | = | -0.588  | ( | 0.002) |       |     |
| gap 2p    | = | 6.590   | ( | 0.182) |       |     |
| gap 2n    | = | 5.903   | ( | 0.003) |       |     |
| gap alpha | = | -1.634  | ( | 0.000) |       |     |