

^{170}Hf $Z = 72$ $N = 98$ adopted link ENSDF link

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

BE = 1372.049 (0.028) MeV

Qbeta+ = 1.052 (0.033) MeV

| | Energy T | J+ | J- | J-other | T1/2 |
|----------|----------|----------|-------|-----------------|--------------|
| ----- | | | | | |
| S-alpha= | -2.915 | (0.029) | ----- | | |
| 170HF 1 | 0.000 | 0+ | | | 1 16.01 H 13 |
| 170HF 2 | 0.101 | 2+ | | | 2 1.21 NS 4 |
| 170HF 3 | 0.322 | 4+ | | | 3 60.5 PS 8 |
| 170HF 4 | 0.643 | 6+ | | | 4 9.13 PS 29 |
| 170HF 5 | | | | 0.880 (0+) | 5 |
| 170HF 6 | | | | 0.962 (2+) | 6 |
| 170HF 7 | | | | 0.988 (2+) | 7 |
| 170HF 8 | 1.043 | 8+ | | | 8 2.77 PS 9 |
| 170HF 9 | | | | 1.088 (3+) | 9 |
| 170HF 10 | | | | 1.159 (4+) | 10 |
| ----- | | | | | |
| 170HF 11 | 1.219 | 4+ | | | 11 |
| 170HF 12 | 1.227 | 4+ | | | 12 |
| 170HF 13 | | | | 1.373 (5-) | 13 |
| 170HF 14 | | | | 1.425 | 14 |
| 170HF 15 | | | | 1.442 (2+,3,4+) | 15 |
| 170HF 16 | | | | 1.444 (6+) | 16 |
| 170HF 17 | 1.504 | 10+ | | | 17 1.25 PS 8 |
| 170HF 18 | | | | 1.544 (5-) | 18 |
| 170HF 19 | | | | 1.564 (4-) | 19 |
| 170HF 20 | | | | 1.566 | 20 |
| ----- | | | | | |
| 170HF 21 | | | | 1.573 | 21 |
| 170HF 22 | | | | 1.583 | 22 |
| 170HF 23 | | | | 1.659 | 23 |
| 170HF 24 | | | | 1.698 | 24 |
| 170HF 25 | | | | 1.726 (7-) | 25 |
| 170HF 26 | | | | 1.773 (6+) | 26 5 NS LT |
| 170HF 27 | | | | 1.799 (6-) | 27 |
| 170HF 28 | | | | 1.966 (7+) | 28 |
| 170HF 29 | | | | 1.999 | 29 |
| 170HF 30 | 2.016 | 12+ | | | 30 0.76 PS 9 |
| ----- | | | | | |
| 170HF 31 | | | | 2.109 (8-) | 31 |
| 170HF 32 | | | | 2.117 | 32 |
| 170HF 33 | | | | 2.130 (9-) | 33 |
| 170HF 34 | | | | 2.149 (7-) | 34 |
| 170HF 35 | | | | 2.183 (8-) | 35 23 NS 2 |
| 170HF 36 | | | | 2.254 (8-) | 36 |

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|-------|----|-------|-----|--|-------|-------|---------------|
| 170HF | 37 | | | | 2.349 | (9-) | 37 |
| 170HF | 38 | | | | 2.384 | 9(-) | 38 |
| 170HF | 39 | | | | 2.384 | (8-) | 39 |
| 170HF | 40 | | | | 2.405 | (9-) | 40 |
| ----- | | | | | | | |
| 170HF | 41 | | | | 2.476 | (10-) | 41 |
| 170HF | 42 | | | | 2.483 | (11)- | 42 |
| 170HF | 43 | | | | 2.530 | (10-) | 43 |
| 170HF | 44 | 2.567 | 14+ | | | | 44 0.53 PS 8 |
| 170HF | 45 | | | | 2.579 | (11-) | 45 |
| 170HF | 46 | | | | 2.644 | (10-) | 46 |
| 170HF | 47 | | | | 2.689 | (11-) | 47 |
| 170HF | 48 | | | | 2.725 | (10-) | 48 |
| 170HF | 49 | | | | 2.878 | (12-) | 49 |
| 170HF | 50 | | | | 2.906 | (11-) | 50 |
| ----- | | | | | | | |
| 170HF | 51 | | | | 2.924 | (12-) | 51 |
| 170HF | 52 | | | | 2.932 | (13)- | 52 |
| 170HF | 53 | | | | 3.062 | (13-) | 53 |
| 170HF | 54 | | | | 3.094 | (13-) | 54 |
| 170HF | 55 | | | | 3.135 | (12-) | 55 |
| 170HF | 56 | | | | 3.144 | (13-) | 56 |
| 170HF | 57 | 3.151 | 16+ | | | | 57 0.38 PS 9 |
| 170HF | 58 | | | | 3.178 | (12-) | 58 |
| 170HF | 59 | | | | 3.196 | (13-) | 59 |
| 170HF | 60 | | | | 3.324 | (14-) | 60 |
| ----- | | | | | | | |
| 170HF | 61 | | | | 3.423 | (14-) | 61 |
| 170HF | 62 | | | | 3.429 | (15)- | 62 |
| 170HF | 63 | | | | 3.460 | (13-) | 63 |
| 170HF | 64 | | | | 3.532 | (16+) | 64 |
| 170HF | 65 | | | | 3.538 | (15-) | 65 |
| 170HF | 66 | | | | 3.578 | (15-) | 66 |
| 170HF | 67 | | | | 3.611 | (14-) | 67 |
| 170HF | 68 | | | | 3.635 | (15-) | 68 |
| 170HF | 69 | | | | 3.717 | (15-) | 69 |
| 170HF | 70 | | | | 3.750 | (14-) | 70 |
| ----- | | | | | | | |
| 170HF | 71 | 3.766 | 18+ | | | | 71 0.35 PS AP |
| 170HF | 72 | | | | 3.810 | (16-) | 72 |
| 170HF | 73 | | | | 3.834 | (16-) | 73 |
| 170HF | 74 | | | | 3.965 | (17-) | 74 |
| 170HF | 75 | | | | 3.984 | (16-) | 75 |
| 170HF | 76 | | | | 4.044 | (15-) | 76 |
| 170HF | 77 | | | | 4.062 | (17-) | 77 |
| 170HF | 78 | | | | 4.093 | (18+) | 78 |
| 170HF | 79 | | | | 4.123 | (17-) | 79 |
| 170HF | 80 | | | | 4.137 | + | 80 |
| ----- | | | | | | | |
| 170HF | 81 | | | | 4.145 | (16-) | 81 |

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|-----------|-------|----------|-------|-------|-------|---------------|
| 170HF 82 | | | | 4.214 | (17-) | 82 |
| 170HF 83 | | | | 4.293 | (17-) | 83 |
| 170HF 84 | | | | 4.339 | (16-) | 84 |
| 170HF 85 | | | | 4.364 | (21-) | 85 |
| 170HF 86 | | | | 4.394 | (18-) | 86 |
| 170HF 87 | | | | 4.418 | (18-) | 87 |
| 170HF 88 | | 4.421 | 20+ | | | 88 0.24 PS AP |
| 170HF 89 | | | | 4.529 | (19-) | 89 |
| 170HF 90 | | | | 4.584 | (18-) | 90 |
| ----- | | | | | | |
| 170HF 91 | | | | 4.629 | (17-) | 91 |
| 170HF 92 | | | | 4.670 | (19-) | 92 |
| 170HF 93 | | | | 4.715 | (19-) | 93 |
| 170HF 94 | | | | 4.726 | (18-) | 94 |
| 170HF 95 | | | | 4.751 | (20+) | 95 |
| 170HF 96 | | | | 4.844 | (19-) | 96 |
| 170HF 97 | | | | 4.909 | (19-) | 97 |
| 170HF 98 | | | | 4.943 | (18-) | 98 |
| 170HF 99 | | | | 4.968 | (19-) | 99 |
| 170HF 100 | | | | 4.994 | (20-) | 100 |
| ----- | | | | | | |
| 170HF 101 | | | | 5.065 | (20-) | 101 |
| 170HF 102 | | | | 5.126 | (21-) | 102 |
| 170HF 103 | | 5.130 | 22+ | | | 103 |
| 170HF 104 | | | | 5.222 | (20-) | 104 |
| 170HF 105 | | | | 5.269 | (19-) | 105 |
| 170HF 106 | | | | 5.343 | (21-) | 106 |
| 170HF 107 | | | | 5.352 | (20-) | 107 |
| 170HF 108 | | | | 5.358 | (21-) | 108 |
| S-p = | 5.460 | (0.028) | ----- | | | |
| 170HF 109 | | | | 5.482 | (22+) | 109 |
| 170HF 110 | | | | 5.506 | (21-) | 110 |
| ----- | | | | | | |
| 170HF 111 | | | | 5.526 | (21-) | 111 |
| 170HF 112 | | | | 5.623 | (20-) | 112 |
| 170HF 113 | | | | 5.638 | (22-) | 113 |
| 170HF 114 | | | | 5.757 | (22-) | 114 |
| 170HF 115 | | | | 5.770 | (23-) | 115 |
| 170HF 116 | | | | 5.897 | (22-) | 116 |
| 170HF 117 | | 5.903 | 24+ | | | 117 |
| 170HF 118 | | | | 5.996 | (21-) | 118 |
| 170HF 119 | | | | 6.015 | (23-) | 119 |
| 170HF 120 | | | | 6.023 | (22-) | 120 |
| ----- | | | | | | |
| 170HF 121 | | | | 6.118 | (23-) | 121 |
| 170HF 122 | | | | 6.128 | (23-) | 122 |
| 170HF 123 | | | | 6.263 | (23-) | 123 |
| 170HF 124 | | | | 6.267 | (24+) | 124 |
| 170HF 125 | | | | 6.339 | (24-) | 125 |
| 170HF 126 | | | | 6.388 | (22-) | 126 |

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| 170HF 127 | | | | 6.476 | (25-) | 127 |
| 170HF 128 | | | | 6.499 | (24-) | 128 |
| 170HF 129 | | | | 6.618 | (24-) | 129 |
| 170HF 130 | | 6.739 | 26+ | | | 130 |
| ----- | | | | | | |
| 170HF 131 | | | | 6.744 | (25-) | 131 |
| 170HF 132 | | | | 6.746 | (24-) | 132 |
| 170HF 133 | | | | 6.796 | (25-) | 133 |
| 170HF 134 | | | | 6.798 | (23-) | 134 |
| 170HF 135 | | | | 6.940 | (25-) | 135 |
| 170HF 136 | | | | 7.044 | (25-) | 136 |
| 170HF 137 | | | | 7.096 | (26+) | 137 |
| 170HF 138 | | | | 7.106 | (26-) | 138 |
| 170HF 139 | | | | 7.225 | (24-) | 139 |
| 170HF 140 | | | | 7.252 | (27-) | 140 |
| ----- | | | | | | |
| 170HF 141 | | | | 7.286 | (26-) | 141 |
| 170HF 142 | | | | 7.397 | (26-) | 142 |
| 170HF 143 | | | | 7.512 | (27-) | 143 |
| 170HF 144 | | | | 7.520 | (26-) | 144 |
| 170HF 145 | | | | 7.542 | (27-) | 145 |
| 170HF 146 | | 7.636 | 28+ | | | 146 |
| 170HF 147 | | | | 7.800 | (27-) | 147 |
| 170HF 148 | | | | 7.868 | (27-) | 148 |
| 170HF 149 | | | | 7.944 | (28-) | 149 |
| 170HF 150 | | | | 7.967 | (28+) | 150 |
| ----- | | | | | | |
| 170HF 151 | | | | 8.099 | (29-) | 151 |
| 170HF 152 | | | | 8.123 | (28-) | 152 |
| 170HF 153 | | | | 8.241 | (28-) | 153 |
| 170HF 154 | | | | 8.283 | (29-) | 154 |
| 170HF 155 | | | | 8.345 | (28-) | 155 |
| 170HF 156 | | | | 8.410 | (29-) | 156 |
| 170HF 157 | | 8.590 | 30+ | | | 157 |
| 170HF 158 | | | | 8.667 | (29-) | 158 |
| 170HF 159 | | | | 8.851 | (30-) | 159 |
| 170HF 160 | | | | 8.882 | (30+) | 160 |
| ----- | | | | | | |
| 170HF 161 | | | | 9.016 | (31-) | 161 |
| 170HF 162 | | | | 9.025 | (30-) | 162 |
| 170HF 163 | | | | 9.110 | (31-) | 163 |
| 170HF 164 | | | | 9.150 | (30-) | 164 |
| 170HF 165 | | | | 9.238 | (30-) | 165 |
| S-2p | = | 9.252 | (0.028) | ----- | | |
| 170HF 166 | | | | 9.344 | (31-) | 166 |
| 170HF 167 | | | | 9.577 | (31-) | 167 |
| 170HF 168 | | 9.598 | 32+ | | | 168 |
| S-n | = | 9.608 | (0.040) | ----- | | |
| 170HF 169 | | | | 9.819 | (32-) | 169 |
| 170HF 170 | | | | 9.841 | (32+) | 170 |

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| 170HF 171 | | | 9.996 (32-) | 171 |
| 170HF 172 | | | 9.996 (33-) | 172 |
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| S-p | = | 5.460 (0.028) | ----- | |
| S-n | = | 9.608 (0.040) | ----- | |
| S-2p | = | 9.252 (0.028) | ----- | |
| S-2n | = | 17.036 (0.040) | ----- | |
| S-alpha | = | -2.915 (0.029) | ----- | |
| | | | | |
| S+p | = | -2.755 (0.040) | | |
| S+n | = | -7.249 (0.040) | | |
| S+2p | = | -7.421 (0.040) | | |
| S+2n | = | -16.291 (0.037) | | |
| S+alpha | = | 3.602 (0.040) | | |
| | | | | |
| gap p | = | 2.705 (0.048) | | |
| gap n | = | 2.359 (0.056) | | |
| gap 2p | = | 1.830 (0.048) | | |
| gap 2n | = | 0.745 (0.054) | | |
| gap alpha | = | 0.687 (0.049) | | |