In[2270]:= `e8hulls`

Out[2270]=

$$\left\{\begin{pmatrix} 48 & 209 \\ 41 & 216 \end{pmatrix}, \begin{pmatrix} 17 & 18 & 22 & 23 & 25 & 30 & 137 & 144 & 148 & 152 & 158 & 162 \\ 95 & 99 & 105 & 109 & 113 & 120 & 227 & 232 & 234 & 235 & 239 & 240 \end{pmatrix}, \begin{pmatrix} 19 & 24 & 28 & 129 & 133 & 135 & 140 & 141 & 146 & 147 & 149 & 150 & 155 & 156 & 159 & 161 & 163 & 245 & 246 & 247 \\ 10 & 11 & 12 & 94 & 96 & 98 & 101 & 102 & 107 & 108 & 110 & 111 & 116 & 117 & 122 & 124 & 128 & 229 & 233 & 238 \end{pmatrix}, \begin{pmatrix} 38 & 39 & 40 & 42 & 43 & 44 & 45 & 46 & 47 & 49 & 50 & 51 \\ 54 & 65 & 74 & 82 & 83 & 84 & 85 & 86 & 87 & 176 & 185 & 196 \\ 61 & 72 & 81 & 170 & 171 & 172 & 173 & 174 & 175 & 183 & 192 & 203 \\ 44 & 39 & 54 & 87 & 83 & 49 & 213 & 218 & 203 & 170 & 174 & 208 \end{pmatrix},$$

$$\begin{pmatrix} 70 & 57 & 89 & 80 & 66 & 59 & 76 & 92 & 78 & 60 & 69 & 73 & 88 & 63 & 62 & 187 & 200 & 168 & 177 & 191 & 198 & 181 & 165 & 179 & 197 & 188 & 184 & 169 & 194 & 195 \end{pmatrix}, \begin{pmatrix} 1 & 20 & 21 & 26 & 27 & 29 & 31 & 35 & 36 & 37 & 130 & 131 & 132 & 136 & 138 & 142 & 143 & 153 & 154 & 244 \\ 13 & 103 & 104 & 114 & 115 & 119 & 121 & 125 & 126 & 127 & 220 & 221 & 222 & 226 & 228 & 230 & 231 & 236 & 237 & 256 \end{pmatrix},$$

$$\begin{pmatrix} 32 & 33 & 34 & 134 & 139 & 145 & 151 & 157 & 160 & 241 & 242 & 243 \\ 14 & 15 & 16 & 97 & 100 & 106 & 112 & 118 & 123 & 223 & 224 & 225 \end{pmatrix}, \begin{pmatrix} 77 & 64 & 79 & 68 & 53 & 75 & 52 & 91 & 71 & 55 & 67 & 56 & 58 & 90 & 93 & 180 & 193 & 178 & 189 & 204 & 182 & 205 & 166 & 186 & 202 & 190 & 201 & 199 & 167 & 164 \end{pmatrix}\right\}$$

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dispRows@# & /@ e8hulls[[1]] // ColumnForm
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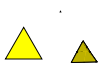
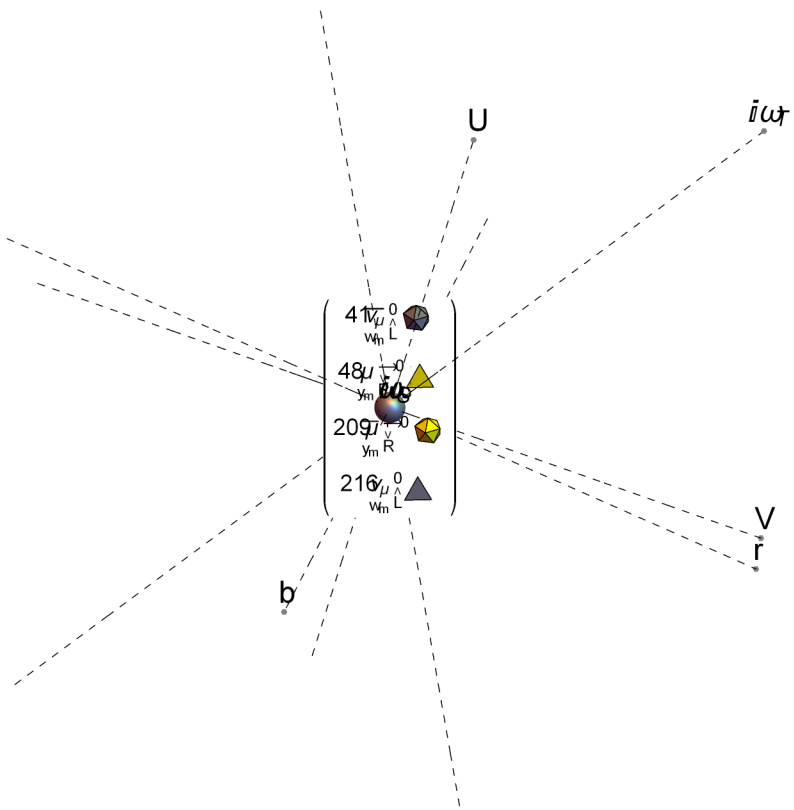
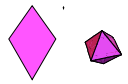
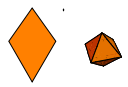
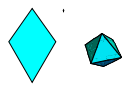
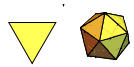
Seq #	Symbol	2D/3D Shape	Groups	Particle Quantum Bits	Binary / E8 / Physics Coordinates	Algebra Root Weight / Height / Rt#=Atomic Element Number -->	Ele #	Octonions
48	μ $\overset{\to 0}{\vee}$ ym R		{D8, E7, D7, E6, D6, D5, E4, H4cell24, 0Pointsa, ring1, H4ring4, a7, a6, a5, a4}	$0apggsscc$ 000101100_2	Bn{ 1 0 1 0 0 0 0 1 } E8{ −1 0 0 0 1 0 0 0 } Ph{ −1 0 0 0 1 0 0 0 }	Rt{ 0 −1 −1 −1 −1 0 0 0 } Wt{ 0 −1 0 0 −1 1 0 0 } Ht 4	Co 27	Flipped Triad fpi=16 D_8 L fp_sm=3→31H {{1, 5, 2}, {1, 3, 6}, {1, 4, 7}, {2, 3, 7}, {2, 6, 4}, {3, 5, 4}, {5, 6, 7}} flat triad/mask bits {1, 2, 5, 3, 6, 4, 7} {1, 0, 0, 0, 1, 1, 0} Not Flipped Triad fpi=15 D_8 L fp_sm=3→31H {{1, 5, 2}, {1, 3, 6}, {1, 4, 7}, {2, 3, 4}, {2, 7, 6}, {3, 7, 5}, {4, 5, 6}} flat triad/mask bits {1, 5, 2, 3, 6, 4, 7} {1, 0, 0, 0, 1, 1, 0}
209	$\overline{\mu}$ $\overset{+\to 0}{\vee}$ ym R		{D8, E7, D7, E6, D6, D5, E4, H4cell24, 0Pointsa, ring1, H4ring4, a7, a6, a5, a4}	$0apggsscc$ 010101100_2	Bn{ 0 1 0 1 1 1 1 0 } E8{ 1 0 0 0 −1 0 0 0 } Ph{ 1 0 0 0 −1 0 0 0 }	Rt{ 0 1 1 1 1 0 0 0 } Wt{ 0 1 0 0 1 −1 0 0 } Ht 4	Co 27	Flipped Triad fpi=15 D_8 L fp_sm=3→4EH {{1, 2, 5}, {1, 6, 3}, {1, 7, 4}, {2, 4, 3}, {2, 6, 7}, {3, 5, 7}, {4, 6, 5}} flat triad/mask bits {1, 5, 2, 6, 3, 7, 4} {0, 1, 1, 1, 0, 0, 1} Not Flipped Triad fpi=16 D_8 L fp_sm=3→4EH {{1, 2, 5}, {1, 6, 3}, {1, 7, 4}, {2, 7, 3}, {2, 4, 6}, {3, 4, 5}, {5, 7, 6}} flat triad/mask bits {1, 2, 5, 6, 3, 7, 4} {0, 1, 1, 1, 0, 0, 1}

Seq #	Symbol	2D/3D Shape	Groups	Particle Quantum Bits	Binary / E8 / Physics Coordinates	Algebra Root Weight / Height / Rt#=Atomic Element Number -->	Ele #	Octonions
41	$\overline{\nu_\mu}$ $\overset{0}{\wedge}$ wm L		{D8, E7, E7(56), D7, E6, D6, D5, H4Φcell24, 0Pointsb, ring2, H4Φring4}	$0apggsscc$ 011101000_2	Bn{ 1 1 0 0 0 1 0 0 } E8{ −1 0 0 0 −1 0 0 0 } Ph{ −1 0 0 0 −1 0 0 0 }	Rt{ 0 −1 −1 −1 −1 −2 −1 −1 } Wt{ 1 −1 0 0 1 −1 0 0 } Ht 8	Te 52	Flipped Triad fpi=16 D_8 R fp_sm=3→57H {{1, 5, 2}, {1, 6, 3}, {1, 7, 4}, {2, 3, 7}, {2, 6, 4}, {3, 4, 5}, {5, 7, 6}} flat triad/mask bits {1, 2, 5, 6, 3, 7, 4} {1, 1, 1, 0, 1, 0, 1} Not Flipped Triad fpi=15 D_8 R fp_sm=3→57H {{1, 5, 2}, {1, 6, 3}, {1, 7, 4}, {2, 3, 4}, {2, 7, 6}, {3, 5, 7}, {4, 6, 5}} flat triad/mask bits {1, 5, 2, 6, 3, 7, 4} {1, 1, 1, 0, 1, 0, 1}
216	ν_μ $\overset{0}{\wedge}$ wm L		{D8, E7, E7(56), D7, E6, D6, D5, H4Φcell24, 0Pointsb, ring2, H4Φring4}	$0apggsscc$ 001101000_2	Bn{ 0 0 1 1 1 0 1 1 } E8{ 1 0 0 0 1 0 0 0 } Ph{ 1 0 0 0 1 0 0 0 }	Rt{ 0 1 1 1 1 2 1 1 } Wt{ −1 1 0 0 −1 1 0 0 } Ht 8	Te 52	Flipped Triad fpi=15 D_8 R fp_sm=3→28H {{1, 2, 5}, {1, 3, 6}, {1, 4, 7}, {2, 4, 3}, {2, 6, 7}, {3, 7, 5}, {4, 5, 6}} flat triad/mask bits {1, 5, 2, 3, 6, 4, 7} {0, 0, 0, 1, 0, 1, 0} Not Flipped Triad fpi=16 D_8 R fp_sm=3→28H {{1, 2, 5}, {1, 3, 6}, {1, 4, 7}, {2, 7, 3}, {2, 4, 6}, {3, 5, 4}, {5, 6, 7}} flat triad/mask bits {1, 2, 5, 3, 6, 4, 7} {0, 0, 0, 1, 0, 1, 0}



In[2272]:= `dispRows@# & /@ e8hulls[[2]] // ColumnForm`

Out[2272]=

Seq #	Symbol	2D/3D Shape	Groups	Particle Quantum Bits	Binary / E8 / Physics Coordinates	Algebra Root Weight / Height / Rt#=Atomic Element Number -->	Ele #	Octonions
17	$\nu_e\ {}^{0}_{w_m}\ \hat{L}$		{BC8, E7, E6, 6Cube, E5, C4, snubH4 24−2, snubH4 16−2, 3Cube, B2=C2, 1Icosasa, ring4, H4ring2}	$0apggsscc\ 001011000_2$	Bn{ 0 1 1 0 0 0 0 0 } E8{ $-\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ } Ph{ $-\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{\sqrt{2}}$ 0 $-\frac{1}{2}$ $-\frac{\sqrt{3}}{2}$ 0 0 }	Rt{ 1 0 1 2 2 2 1 1 } Wt{ 1 −1 0 1 0 0 0 −1 } Ht 10	Dy 66	Flipped Triad fpi=7 BC_8 R fp_sm=3→28H {{1, 2, 4}, {1, 3, 5}, {1, 6, 7}, {2, 6, 3}, {2, 5, 7}, {3, 7, 4}, {4, 5, 6}} flat triad/mask bits {1, 4, 2, 3, 5, 6, 7} {0, 0, 0, 1, 0, 1, 0} Not Flipped Triad fpi=4 BC_8 R fp_sm=3→28H {{1, 2, 3}, {1, 4, 6}, {1, 5, 7}, {2, 7, 5, 6}, {3, 5, 4}, {3, 6, 7}} flat triad/mask bits {1, 2, 3, 4, 6, 5, 7} {0, 0, 0, 1, 0, 1, 0}
18	$e\ {}^{-}_{y_m}\ \hat{L}$		{BC8, E7, E6, 6Cube, E5, C4, snubH4 24−2, 3Cube, 1Icosasa, ring1, H4ring4}	$0apggsscc\ 000011000_2$	Bn{ 0 1 0 1 0 0 0 0 } E8{ $-\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ } Ph{ $-\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{\sqrt{2}}$ 0 $-\frac{1}{2}$ $-\frac{\sqrt{3}}{2}$ 0 0 }	Rt{ 1 0 1 1 2 2 1 1 } Wt{ 1 −1 1 −1 1 0 0 −1 } Ht 9	Pm 61	Flipped Triad fpi=4 BC_8 L fp_sm=3→2FH {{1, 3, 2}, {1, 6, 4}, {1, 7, 5}, {2, 7, 4}, {2, 5, 6}, {3, 5, 4}, {3, 6, 7}} flat triad/mask bits {1, 2, 3, 6, 4, 7, 5} {1, 1, 1, 1, 0, 1, 0} Not Flipped Triad fpi=7 BC_8 L fp_sm=3→2FH {{1, 4, 2}, {1, 5, 3}, {1, 7, 6}, {2, 6, 2, 5, 7}, {3, 7, 4}, {4, 5, 6}} flat triad/mask bits {1, 4, 2, 5, 3, 7, 6} {1, 1, 1, 1, 0, 1, 0}
22	$\overline{b}\ {}^{1/3}_{m_l}\ \hat{R}$		{BC8, snubH4 24−3, 1Icosasa, ring1, H4ring4}	$0apggsscc\ 010110111_2$	Bn{ 0 1 0 0 0 0 0 1 } E8{ $-\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ } Ph{ $-\frac{1}{2}$ $\frac{1}{2}$ 0 $-\frac{1}{\sqrt{2}}$ $-\frac{1}{2}$ $-\frac{1}{2\sqrt{3}}$ 0 $\sqrt{\frac{2}{3}}$ }	Rt{ −1 −1 −1 −2 −3 −4 −2 −3 } Wt{ 1 −1 1 0 0 0 0 −1 } Ht 17	$\overline{\text{Bk}}$ 97	Flipped Triad fpi=28 BC_8 L fp_sm=3→63H {{1, 7, 2}, {1, 5, 3}, {1, 4, 6}, {2, 3, 6}, {2, 4, 5}, {3, 7, 4}, {5, 7, 6}} flat triad/mask bits {1, 7, 2, 5, 3, 4, 6} {1, 1, 0, 0, 0, 1, 1} Not Flipped Triad fpi=30 BC_8 L fp_sm=6→68H {{1, 7, 2}, {1, 3, 6}, {1, 4, 5}, {2, 5, 2, 7}, {3, 6, 4}, {5, 7, 6}} flat triad/mask bits {1, 2, 7, 3, 6, 4, 5} {0, 0, 0, 1, 0, 1, 1}
23	$e\ {}^{-}_{y_l}\ \hat{R}$		{BC8, E7, E6, 6Cube, E5, C4, snubH4 24−2, 3Cube, 1Icosasa, ring1, H4ring3}	$0apggsscc\ 000010100_2$	Bn{ 0 0 1 1 0 0 0 0 } E8{ $-\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ } Ph{ $-\frac{1}{2}$ $-\frac{1}{2}$ 0 $\frac{1}{\sqrt{2}}$ $-\frac{1}{2}$ $-\frac{\sqrt{3}}{2}$ 0 0 }	Rt{ 1 0 0 1 2 2 1 1 } Wt{ 1 0 −1 0 1 0 0 −1 } Ht 8	Xe 54	Flipped Triad fpi=4 BC_8 L fp_sm=3→1CH {{1, 2, 3}, {1, 4, 6}, {1, 7, 5}, {2, 7, 4}, {2, 5, 6}, {3, 4, 5}, {3, 6, 7}} flat triad/mask bits {1, 3, 2, 4, 6, 7, 5} {0, 0, 1, 1, 1, 0, 0} Not Flipped Triad fpi=7 BC_8 L fp_sm=3→1CH {{1, 2, 4}, {1, 3, 5}, {1, 7, 6}, {2, 6, 2, 6, 5}, {3, 7, 5}, {4, 5, 6}} flat triad/mask bits {1, 2, 4, 3, 5, 7, 6} {0, 0, 1, 1, 1, 0, 0}
25	$\overline{b}\ {}^{+\to 1/3}_{o_m}\ \hat{L}$		{BC8, E7, E6(27), 6Cube, C4, snubH4 24−1, 1Icosasa, ring1, H4ring4}	$0apggsscc\ 010111001_2$	Bn{ 0 0 1 0 0 1 0 0 } E8{ $-\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ } Ph{ $-\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{\sqrt{2}}$ 0 $-\frac{1}{2}$ $-\frac{1}{2\sqrt{3}}$ $-\frac{1}{\sqrt{2}}$ $-\frac{1}{\sqrt{6}}$ }	Rt{ 1 0 0 1 1 1 1 1 } Wt{ 1 0 −1 1 0 −1 1 0 } Ht 6	Mo 42	Flipped Triad fpi=26 BC_8 L fp_sm=8→59H {{1, 7, 2}, {1, 3, 4}, {1, 5, 6}, {2, 6, 3}, {2, 5, 4}, {3, 5, 7}, {4, 7, 6}} flat triad/mask bits {1, 2, 7, 3, 4, 5, 6} {1, 0, 0, 1, 1, 0, 1} Not Flipped Triad fpi=25 BC_8 L fp_sm=5→5AH {{1, 7, 2}, {1, 4, 3}, {1, 5, 6}, {2, 5, 2, 6, 4}, {3, 6, 7}, {4, 7, 5}} flat triad/mask bits {1, 2, 7, 4, 3, 5, 6} {0, 1, 0, 1, 1, 0, 1}
30	$\overline{b}\ {}^{+\to -2/3}_{c_m}\ \check{R}$		{BC8, 6Cube, snubH4 24−4, snubH4 16−4, 1Icosasa, ring2, H4ring4}	$0apggsscc\ 010111110_2$	Bn{ 0 0 0 1 0 0 1 0 } E8{ $-\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ } Ph{ $-\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{\sqrt{2}}$ 0 $-\frac{1}{2}$ $-\frac{1}{2\sqrt{3}}$ $\frac{1}{\sqrt{2}}$ $-\frac{1}{\sqrt{6}}$ }	Rt{ 1 0 0 0 1 1 0 1 } Wt{ 1 0 0 −1 1 0 −1 0 } Ht 4	Cu 29	Flipped Triad fpi=29 BC_8 L fp_sm=7→46H {{1, 2, 7}, {1, 6, 3}, {1, 5, 4}, {2, 3, 4}, {2, 5, 6}, {3, 5, 7}, {4, 7, 6}} flat triad/mask bits {1, 7, 2, 6, 3, 5, 4} {0, 1, 1, 0, 0, 0, 1} Not Flipped Triad fpi=27 BC_8 L fp_sm=4→4FH {{1, 7, 2}, {1, 5, 3}, {1, 6, 4}, {2, 4, 2, 5, 6}, {3, 6, 7}, {4, 7, 5}} flat triad/mask bits {1, 7, 2, 5, 3, 6, 4} {1, 1, 1, 1, 0, 0, 1}
137	$u\ {}^{0\to 2/3}_{g_m}\ \hat{L}$		{BC8, snubH4 24−1, snubH4 16−1, 1Icosasa, ring2, H4ring4}	$0apggsscc\ 001011010_2$	Bn{ 0 1 1 0 0 1 0 1 } E8{ $-\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ } Ph{ $-\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{\sqrt{2}}$ 0 $-\frac{1}{2}$ $\frac{1}{2\sqrt{3}}$ $-\frac{1}{\sqrt{2}}$ $\frac{1}{\sqrt{6}}$ }	Rt{ −1 −1 −1 −1 −2 −3 −1 −2 } Wt{ 0 −1 0 1 0 −1 1 0 } Ht 12	$\overline{\text{Ir}}$ 77	Flipped Triad fpi=12 BC_8 R fp_sm=4→29H {{1, 4, 2}, {1, 3, 7}, {1, 5, 6}, {2, 6, 3}, {2, 5, 7}, {3, 5, 4}, {4, 6, 7}} flat triad/mask bits {1, 2, 4, 3, 7, 5, 6} {1, 0, 0, 1, 0, 1, 0} Not Flipped Triad fpi=11 BC_8 R fp_sm=1→2AH {{1, 2, 4}, {1, 3, 7}, {1, 5, 6}, {2, 5, 2, 4}, {3, 6, 7}, {4, 6, 7}} flat triad/mask bits {1, 2, 4, 7, 3, 5, 6} {0, 1, 0, 1, 0, 1, 0}
144	$d\ {}^{\to\to -1/3}_{o_m}\ \hat{L}$		{BC8, E7, snubH4 24−3, snubH4 16−3, Idempot, 1Icosasa, ring4, H4ring2}	$0apggsscc\ 000011001_2$	Bn{ 0 1 0 1 0 0 1 1 } E8{ $-\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ } Ph{ $-\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{\sqrt{2}}$ 0 $-\frac{1}{2}$ $\frac{1}{2\sqrt{3}}$ $\frac{1}{\sqrt{2}}$ $\frac{1}{\sqrt{6}}$ }	Rt{ −1 −1 −1 −2 −2 −3 −2 −2 } Wt{ 0 −1 1 −1 1 0 −1 0 } Ht 14	$\overline{\text{Rn}}$ 86	Flipped Triad fpi=8 BC_8 L fp_sm=2→2CH {{1, 2, 4}, {1, 3, 5}, {1, 7, 6}, {2, 7, 3}, {2, 5, 6}, {3, 6, 4}, {4, 5, 7}} flat triad/mask bits {1, 4, 2, 3, 5, 7, 6} {0, 0, 1, 1, 0, 1, 0} Not Flipped Triad fpi=10 BC_8 L fp_sm=5→25H {{1, 4, 2}, {1, 3, 6}, {1, 7, 5}, {2, 3, 2, 5, 6}, {3, 5, 4}, {4, 6, 7}} flat triad/mask bits {1, 4, 2, 3, 6, 7, 5} {1, 0, 1, 0, 0, 1, 0}
148	$\overline{\tau}\ {}^{+}_{y_l}\ \hat{R}$		{BC8, E7, E6, snubH4 24−3, 1Icosasa, ring1, H4ring3}	$0apggsscc\ 010110100_2$	Bn{ 0 1 0 0 0 1 1 1 } E8{ $-\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ } Ph{ $-\frac{1}{2}$ $\frac{1}{2}$ 0 $-\frac{1}{\sqrt{2}}$ $-\frac{1}{2}$ $\frac{\sqrt{3}}{2}$ 0 0 }	Rt{ −1 −1 −1 −2 −3 −4 −2 −2 } Wt{ 0 −1 1 0 0 −1 0 1 } Ht 16	$\overline{\text{Pu}}$ 94	Flipped Triad fpi=23 BC_8 L fp_sm=2→60H {{1, 2, 6}, {1, 3, 7}, {1, 4, 5}, {2, 3, 4}, {2, 5, 7}, {3, 6, 5}, {4, 7, 6}} flat triad/mask bits {1, 6, 2, 3, 7, 4, 5} {0, 0, 0, 0, 0, 1, 1} Not Flipped Triad fpi=24 BC_8 L fp_sm=3→63H {{1, 2, 6}, {1, 3, 7}, {1, 4, 5}, {2, 3, 2, 4, 7}, {3, 6, 4}, {5, 7, 6}} flat triad/mask bits {1, 6, 2, 7, 3, 4, 5} {1, 1, 0, 0, 0, 1, 1}
152	$d\ {}^{-1/3}_{m_l}\ \hat{R}$		{BC8, 6Cube, snubH4 24−4, 1Icosasa, ring3, H4ring3}	$0apggsscc\ 000010111_2$	Bn{ 0 0 1 1 0 1 1 0 } E8{ $-\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ } Ph{ $-\frac{1}{2}$ $-\frac{1}{2}$ 0 $\frac{1}{\sqrt{2}}$ $-\frac{1}{2}$ $\frac{1}{2\sqrt{3}}$ 0 $-\sqrt{\frac{2}{3}}$ }	Rt{ 1 0 0 1 2 2 1 2 } Wt{ 0 0 −1 0 1 −1 0 1 } Ht 9	Pr 59	Flipped Triad fpi=14 BC_8 L fp_sm=7→14H {{1, 2, 5}, {1, 3, 4}, {1, 7, 6}, {2, 3, 7}, {2, 6, 4}, {3, 5, 6}, {4, 5, 7}} flat triad/mask bits {1, 5, 2, 3, 4, 7, 6} {0, 0, 1, 0, 1, 0, 0} Not Flipped Triad fpi=13 BC_8 L fp_sm=6→17H {{1, 5, 2}, {1, 4, 3}, {1, 7, 6}, {2, 3, 2, 7, 4}, {3, 5, 7}, {4, 5, 6}} flat triad/mask bits {1, 5, 2, 4, 3, 7, 6} {1, 1, 1, 0, 1, 0, 0}
158	$\overline{\tau}\ {}^{+}_{y_m}\ \hat{L}$		{BC8, E7, E6, snubH4 24−1, Idempot, 1Icosasa, ring3, H4ring3}	$0apggsscc\ 010111000_2$	Bn{ 0 0 1 0 0 1 1 1 } E8{ $-\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ } Ph{ $-\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{\sqrt{2}}$ 0 $-\frac{1}{2}$ $\frac{\sqrt{3}}{2}$ 0 0 }	Rt{ −1 −1 −2 −2 −3 −4 −2 −2 } Wt{ 0 0 −1 1 0 −1 0 1 } Ht 17	$\overline{\text{Cf}}$ 98	Flipped Triad fpi=23 BC_8 L fp_sm=2→53H {{1, 6, 2}, {1, 7, 3}, {1, 4, 5}, {2, 3, 4}, {2, 7, 5}, {3, 5, 6}, {4, 7, 6}} flat triad/mask bits {1, 2, 6, 7, 3, 4, 5} {1, 1, 0, 0, 1, 0, 1} Not Flipped Triad fpi=24 BC_8 L fp_sm=3→50H {{1, 6, 2}, {1, 7, 3}, {1, 4, 5}, {2, 3, 2, 7, 4}, {3, 4, 6}, {5, 7, 6}} flat triad/mask bits {1, 2, 6, 3, 7, 4, 5} {0, 0, 0, 0, 1, 0, 1}
162	$\overline{\nu_\tau}\ {}^{0}$		{BC8, E7, E6, snubH4 24−4,	$0apggsscc$	Bn{ 0 0 0 1 0 1 1 1 } E8{ $-\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ }	Rt{ −1 −1 −2 −3 −3 −4 −2 −2 } Wt{ 0 0 0 −1 1 −1 0 1 }	$\overline{\text{No}}$	Flipped Triad fpi=24 BC_8 R fp_sm=3→57H {{1, 6, 2}, {1, 7, 3}, {1, 5, 4}, {2, 3, 5}, {2, 7, 4}, {3, 4, 6}, {5, 7, 6}} flat triad/mask bits Not Flipped Triad fpi=23 BC_8 R fp_sm=2→54H {{1, 6, 2}, {1, 3, 7}, {1, 5, 4}, {2, 3, 2, 7, 5}, {3, 5, 6}, {4, 7, 6}} flat triad/mask bits

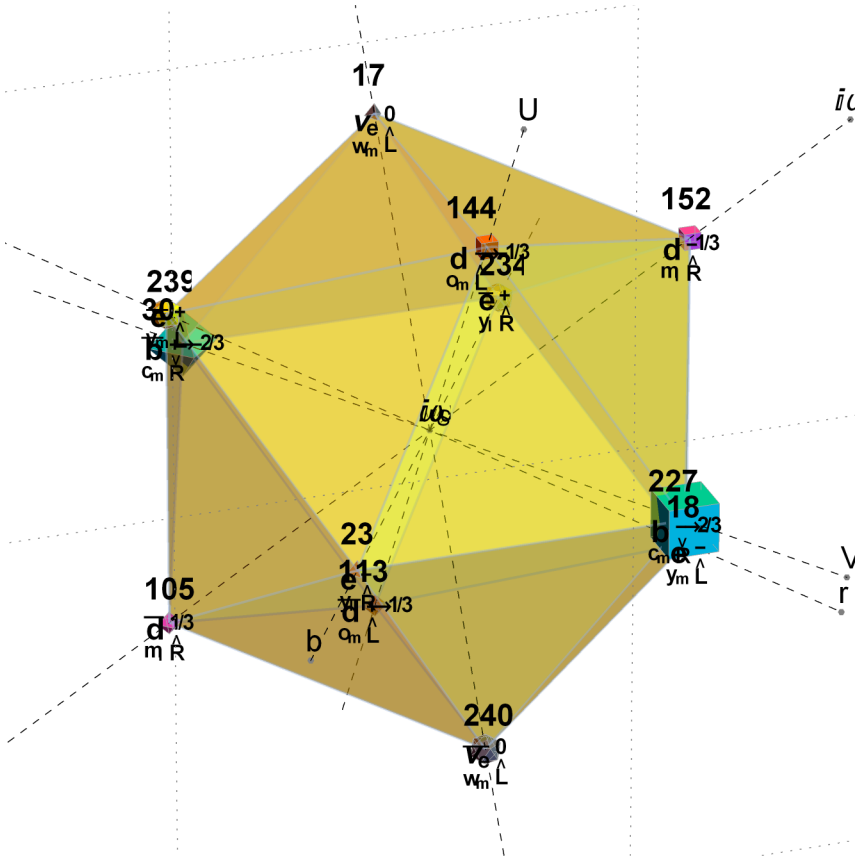
	$\dot{w}_m \hat{L}$		1icosasa, ring1, H4ring4}	011111000_2	Ph{	$-\frac{1}{2}$	$-\frac{1}{2}$	$-\frac{1}{\sqrt{2}}$	0	$-\frac{1}{2}$	$\frac{\sqrt{3}}{2}$	0	0 }	Ht 18									102	flat triad/mask bits {1, 2, 6, 7, 3, 5, 4} {1, 1, 1, 0, 1, 0, 1}	flat triad/mask bits {1, 2, 6, 3, 7, 5, 4} {0, 0, 1, 0, 1, 0, 1}

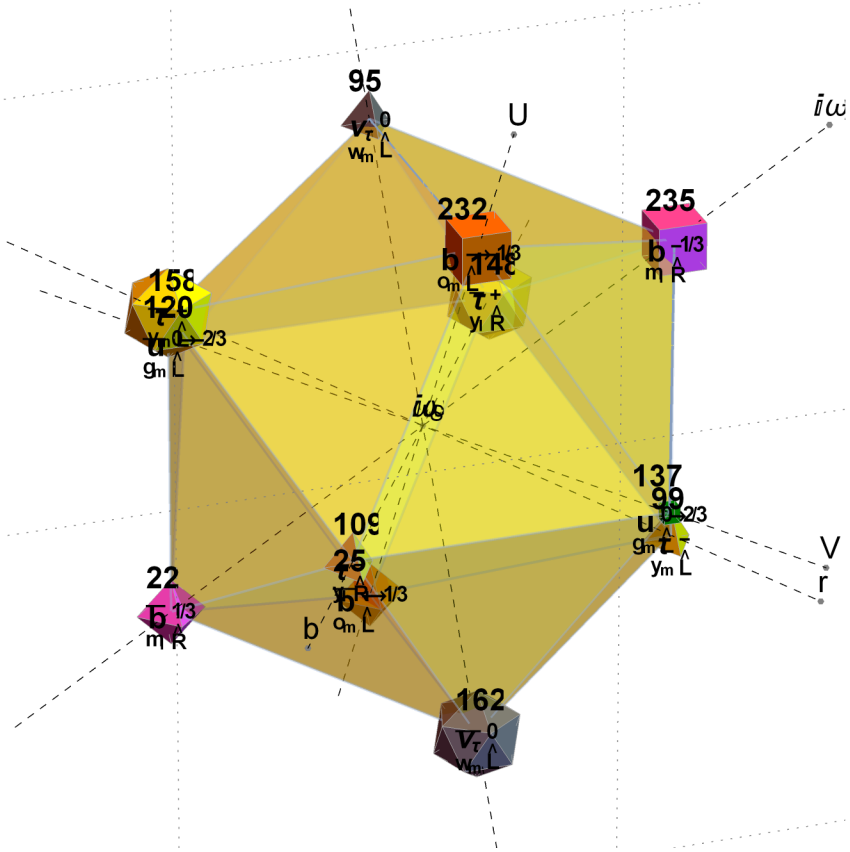
Seq #	Symbol	2D/3D Shape	Groups	Particle Quantum Bits	Binary / E8 / Physics Coordinates									Algebra Root Weight / Height / Rt#=Atomic Element Number -->									Ele #	Octonions	
																								Flipped Triad fpi=23 BC_8 R fp_sm=2→2BH	Not Flipped Triad fpi=24 BC_8 R fp_sm=3→28H
95	$\nu_\tau \overset{0}{w_m} \hat{L}$		{BC8, E7, E6, 6Cube, C4, snubH4 24−4, 1Icosab, ring1, H4ring4}	$0apggsscc$ 001111000_2	Bn{	1	1	1	0	1	0	0	0 }	Rt{	1	1	2	3	3	4	2	2 }	No 102	{{1, 6, 2}, {1, 7, 3}, {1, 4, 5}, {2, 4, 3}, {2, 5, 7}, {3, 6, 5}, {4, 6, 7}}	{{1, 2, 6}, {1, 3, 7}, {1, 4, 5}, {2, 5, 7}, {2, 4, 7}, {3, 6, 4}, {5, 6, 7}}
					E8{	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$-\frac{1}{2}$	$\frac{1}{2}$	$-\frac{1}{2}$	$-\frac{1}{2}$	$-\frac{1}{2}$ }	Wt{	0	0	0	1	−1	1	0	−1 }			
					Ph{	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{\sqrt{2}}$	0	$\frac{1}{2}$	$-\frac{\sqrt{3}}{2}$	0	0 }	Ht 18											
																								flat triad/mask bits {1, 2, 6, 7, 3, 4, 5} {1, 1, 0, 1, 0, 1, 0}	flat triad/mask bits {1, 2, 6, 3, 7, 4, 5} {0, 0, 0, 1, 0, 1, 0}
																								Flipped Triad fpi=24 BC_8 L fp_sm=3→2FH	Not Flipped Triad fpi=23 BC_8 L fp_sm=2→2CH
99	$\tau \overset{-}{y_m} \hat{L}$		{BC8, E7, E6, 6Cube, C4, snubH4 24−1, Idempot, 1Icosab, ring3, H4ring3}	$0apggsscc$ 000111000_2	Bn{	1	1	0	1	1	0	0	0 }	Rt{	1	1	2	2	3	4	2	2 }	Cf 98	{{1, 6, 2}, {1, 7, 3}, {1, 5, 4}, {2, 5, 3}, {2, 4, 7}, {3, 6, 4}, {5, 6, 7}}	{{1, 2, 6}, {1, 3, 7}, {1, 5, 4}, {2, 5, 7}, {3, 6, 5}, {4, 6, 7}}
					E8{	$\frac{1}{2}$	$\frac{1}{2}$	$-\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$-\frac{1}{2}$	$-\frac{1}{2}$	$-\frac{1}{2}$ }	Wt{	0	0	1	−1	0	1	0	−1 }			
					Ph{	$\frac{1}{2}$	$\frac{1}{2}$	$-\frac{1}{\sqrt{2}}$	0	$\frac{1}{2}$	$-\frac{\sqrt{3}}{2}$	0	0 }	Ht 17											
																								flat triad/mask bits {1, 2, 6, 7, 3, 5, 4} {1, 1, 1, 1, 0, 1, 0}	flat triad/mask bits {1, 2, 6, 3, 7, 5, 4} {0, 0, 1, 1, 0, 1, 0}
																								Flipped Triad fpi=13 BC_8 L fp_sm=6→68H	Not Flipped Triad fpi=14 BC_8 L fp_sm=7→6BH
105	$\overline{d} \overset{1/3}{m_l} \hat{R}$		{BC8, snubH4 24−4, 1Icosab, ring3, H4ring3}	$0apggsscc$ 010010111_2	Bn{	1	1	0	0	1	0	0	1 }	Rt{	−1	0	0	−1	−2	−2	−1	−2 }	$\overline{\text{Pr}}$ 59	{{1, 2, 5}, {1, 3, 4}, {1, 6, 7}, {2, 6, 3}, {2, 4, 7}, {3, 7, 5}, {4, 6, 5}}	{{1, 5, 2}, {1, 4, 3}, {1, 6, 7}, {2, 5, 7}, {2, 4, 6}, {3, 6, 5}, {4, 7, 5}}
					E8{	$\frac{1}{2}$	$\frac{1}{2}$	$-\frac{1}{2}$	$-\frac{1}{2}$	$\frac{1}{2}$	$-\frac{1}{2}$	$-\frac{1}{2}$	$\frac{1}{2}$ }	Wt{	0	0	1	0	−1	1	0	−1 }			
					Ph{	$\frac{1}{2}$	$\frac{1}{2}$	0	$-\frac{1}{\sqrt{2}}$	$\frac{1}{2}$	$-\frac{1}{2\sqrt{3}}$	0	$\sqrt{\frac{2}{3}}$ }	Ht 9											
																								flat triad/mask bits {1, 5, 2, 3, 4, 6, 7} {0, 0, 0, 1, 0, 1, 1}	flat triad/mask bits {1, 5, 2, 4, 3, 6, 7} {1, 1, 0, 1, 0, 1, 1}
																								Flipped Triad fpi=24 BC_8 L fp_sm=3→1CH	Not Flipped Triad fpi=23 BC_8 L fp_sm=2→1FH
109	$\tau \overset{-}{y_l} \hat{R}$		{BC8, E7, E6, 6Cube, C4, snubH4 24−3, 1Icosab, ring1, H4ring3}	$0apggsscc$ 000110100_2	Bn{	1	0	1	1	1	0	0	0 }	Rt{	1	1	1	2	3	4	2	2 }	Pu 94	{{1, 2, 6}, {1, 3, 7}, {1, 5, 4}, {2, 5, 3}, {2, 7, 4}, {3, 4, 6}, {5, 6, 7}}	{{1, 6, 2}, {1, 7, 3}, {1, 5, 4}, {2, 7, 5}, {3, 5, 6}, {4, 6, 7}}
					E8{	$\frac{1}{2}$	$-\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$-\frac{1}{2}$	$-\frac{1}{2}$	$-\frac{1}{2}$ }	Wt{	0	1	−1	0	0	1	0	−1 }			
					Ph{	$\frac{1}{2}$	$-\frac{1}{2}$	0	$\frac{1}{\sqrt{2}}$	$\frac{1}{2}$	$-\frac{\sqrt{3}}{2}$	0	0 }	Ht 16											
																								flat triad/mask bits {1, 6, 2, 3, 7, 5, 4} {0, 0, 1, 1, 1, 0, 0}	flat triad/mask bits {1, 6, 2, 7, 3, 5, 4} {1, 1, 1, 1, 1, 0, 0}
																								Flipped Triad fpi=10 BC_8 L fp_sm=5→5AH	Not Flipped Triad fpi=8 BC_8 L fp_sm=2→53H
113	$\overline{d} \overset{+\to 1/3}{o_m} \hat{L}$		{BC8, E7, E6(27), 6Cube, C4, snubH4 24−3, snubH4 16−3, Idempot, 1Icosab, ring4, H4ring2}	$0apggsscc$ 010011001_2	Bn{	1	0	1	0	1	1	0	0 }	Rt{	1	1	1	2	2	3	2	2 }	Rn 86	{{1, 2, 4}, {1, 6, 3}, {1, 5, 7}, {2, 7, 3}, {2, 6, 5}, {3, 4, 5}, {4, 7, 6}}	{{1, 4, 2}, {1, 5, 3}, {1, 6, 7}, {2, 3, 6, 5}, {3, 4, 6}, {4, 7, 5}}
					E8{	$\frac{1}{2}$	$-\frac{1}{2}$	$\frac{1}{2}$	$-\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$-\frac{1}{2}$	$-\frac{1}{2}$ }	Wt{	0	1	−1	1	−1	0	1	0 }			
					Ph{	$\frac{1}{2}$	$-\frac{1}{2}$	$\frac{1}{\sqrt{2}}$	0	$\frac{1}{2}$	$-\frac{1}{2\sqrt{3}}$	$-\frac{1}{\sqrt{2}}$	$-\frac{1}{\sqrt{6}}$ }	Ht 14											
																								flat triad/mask bits {1, 4, 2, 6, 3, 5, 7} {0, 1, 0, 1, 1, 0, 1}	flat triad/mask bits {1, 4, 2, 5, 3, 6, 7} {1, 1, 0, 0, 1, 0, 1}
																								Flipped Triad fpi=11 BC_8 R fp_sm=1→55H	Not Flipped Triad fpi=12 BC_8 R fp_sm=4→56H
120	$\overline{u} \overset{0\to -2/3}{g_m} \hat{L}$		{BC8, 6Cube, snubH4 24−1, snubH4 16−1, 1Icosab, ring2, H4ring4}	$0apggsscc$ 011011010_2	Bn{	1	0	0	1	1	0	1	0 }	Rt{	1	1	1	1	2	3	1	2 }	Ir 77	{{1, 4, 2}, {1, 3, 7}, {1, 6, 5}, {2, 3, 5}, {2, 7, 6}, {3, 4, 6}, {4, 7, 5}}	{{1, 2, 4}, {1, 3, 7}, {1, 6, 5}, {2, 3, 5}, {2, 7, 6}, {3, 4, 5}, {4, 7, 6}}
					E8{	$\frac{1}{2}$	$-\frac{1}{2}$	$-\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$-\frac{1}{2}$	$\frac{1}{2}$	$-\frac{1}{2}$ }	Wt{	0	1	0	−1	0	1	−1	0 }			
					Ph{	$\frac{1}{2}$	$-\frac{1}{2}$	$-\frac{1}{\sqrt{2}}$	0	$\frac{1}{2}$	$-\frac{1}{2\sqrt{3}}$	$\frac{1}{\sqrt{2}}$	$-\frac{1}{\sqrt{6}}$ }	Ht 12											
																								flat triad/mask bits {1, 2, 4, 3, 7, 6, 5} {1, 0, 1, 0, 1, 0, 1}	flat triad/mask bits {1, 2, 4, 7, 3, 6, 5} {0, 1, 1, 0, 1, 0, 1}
																								Flipped Triad fpi=27 BC_8 L fp_sm=4→30H	Not Flipped Triad fpi=29 BC_8 L fp_sm=7→39H
227	$b \overset{\to +2/3}{c_m} \check{R}$		{BC8, snubH4 24−4, snubH4 16−4, 1Icosab, ring2, H4ring4}	$0apggsscc$ 000111110_2	Bn{	1	1	1	0	1	1	0	1 }	Rt{	−1	0	0	0	−1	−1	0	−1 }	$\overline{\text{Cu}}$ 29	{{1, 2, 7}, {1, 3, 5}, {1, 4, 6}, {2, 3, 4}, {1, 7, 2}, {1, 3, 6}, {1, 4, 5}, {2, 6, 5}, {3, 7, 6}, {4, 5, 7}}	{{1, 2, 7}, {1, 3, 6}, {1, 4, 5}, {2, 6, 5}, {3, 7, 5}, {4, 6, 7}}
					E8{	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$-\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$-\frac{1}{2}$	$\frac{1}{2}$ }	Wt{	−1	0	0	1	−1	0	1	0 }			
					Ph{	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{\sqrt{2}}$	0	$\frac{1}{2}$	$\frac{1}{2\sqrt{3}}$	$-\frac{1}{\sqrt{2}}$	$\frac{1}{\sqrt{6}}$ }	Ht 4											
																								flat triad/mask bits {1, 7, 2, 3, 5, 4, 6} {0, 0, 0, 0, 1, 1, 0}	flat triad/mask bits {1, 7, 2, 3, 6, 4, 5} {1, 0, 0, 1, 1, 1, 0}
																								Flipped Triad fpi=25 BC_8 L fp_sm=5→25H	Not Flipped Triad fpi=26 BC_8 L fp_sm=8→26H
232	$b \overset{\to -1/3}{o_m} \hat{L}$		{BC8, E7, snubH4 24−1, 1Icosab, ring1, H4ring4}	$0apggsscc$ 000111001_2	Bn{	1	1	0	1	1	0	1	1 }	Rt{	−1	0	0	−1	−1	−1	−1	−1 }	$\overline{\text{Mo}}$ 42	{{1, 7, 2}, {1, 3, 4}, {1, 6, 5}, {2, 3, 5}, {2, 4, 6}, {3, 7, 6}, {4, 5, 7}}	{{1, 2, 7}, {1, 4, 3}, {1, 6, 5}, {2, 4, 5}, {3, 7, 5}, {4, 6, 7}}
					E8{	$\frac{1}{2}$	$\frac{1}{2}$	$-\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$-\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$ }	Wt{	−1	0	1	−1	0	1	−1	0 }			
					Ph{	$\frac{1}{2}$	$\frac{1}{2}$	$-\frac{1}{\sqrt{2}}$	0	$\frac{1}{2}$	$\frac{1}{2\sqrt{3}}$	$\frac{1}{\sqrt{2}}$	$\frac{1}{\sqrt{6}}$ }	Ht 6											
																								flat triad/mask bits {1, 2, 7, 3, 4, 6, 5} {1, 0, 1, 0, 0, 1, 0}	flat triad/mask bits {1, 2, 7, 4, 3, 6, 5} {0, 1, 1, 0, 0, 1, 0}
																								Flipped Triad fpi=7 BC_8 L fp_sm=3→63H	Not Flipped Triad fpi=4 BC_8 L fp_sm=3→63H
234	$\overline{c} \overset{+}{y_l} \hat{R}$		{BC8, E7, E6, E5, snubH4 24−2, 1Icosab, ring1, H4ring3}	$0apggsscc$ 010010100_2	Bn{	1	1	0	0	1	1	1	1 }	Rt{	−1	0	0	−1	−2	−2	−1	−1 }	$\overline{\text{Xe}}$ 54	{{1, 4, 2}, {1, 5, 3}, {1, 6, 7}, {2, 3, 6}, {1, 3, 2}, {1, 6, 4}, {1, 5, 7}, {2, 5, 7}, {3, 7, 4}, {4, 6, 5}}	{{1, 3, 2}, {1, 6, 4}, {1, 5, 7}, {2, 5, 6}, {3, 5, 4}, {3, 7, 6}}
					E8{	$\frac{1}{2}$	$\frac{1}{2}$	$-\frac{1}{2}$	$-\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$ }	Wt{	−1	0	1	0	−1	0	0	1 }			
					Ph{	$\frac{1}{2}$	$\frac{1}{2}$	0	$-\frac{1}{\sqrt{2}}$	$\frac{1}{2}$	$\frac{\sqrt{3}}{2}$	0	0 }	Ht 8											
																								flat triad/mask bits {1, 2, 4, 5, 3, 6, 7} {1, 1, 0, 0, 0, 1, 1}	flat triad/mask bits {1, 3, 2, 6, 4, 5, 7} {1, 1, 0, 0, 0, 1, 1}
																								Flipped Triad fpi=30 BC_8 L fp_sm=6→17H	Not Flipped Triad fpi=28 BC_8 L fp_sm=3→1CH
235	$b \overset{-1/3}{m_l} \hat{R}$		{BC8, 6Cube, snubH4 24−3, 1Icosab, ring1, H4ring4}	$0apggsscc$ 000110111_2	Bn{	1	0	1	1	1	1	1	0 }	Rt{	1	1	1	2	3	4	2	3 }	Bk 97	{{1, 7, 2}, {1, 6, 3}, {1, 5, 4}, {2, 3, 5}, {2, 4, 7}, {3, 5, 6}, {4, 6, 7}}	{{1, 2, 7}, {1, 3, 5}, {1, 6, 4}, {2, 5, 4}, {3, 4, 7}, {5, 6, 7}}
					E8{	$\frac{1}{2}$	$-\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$-\frac{1}{2}$ }	Wt{	−1	1	−1	0	0	0	0	1 }			
					Ph{	$\frac{1}{2}$	$-\frac{1}{2}$	0	$\frac{1}{\sqrt{2}}$	$\frac{1}{2}$	$\frac{1}{2\sqrt{3}}$	0	$-\sqrt{\frac{2}{3}}$ }	Ht 17											
																								flat triad/mask bits {1, 2, 7, 6, 3, 5, 4} {1, 1, 1, 0, 1, 0, 0}	flat triad/mask bits {1, 7, 2, 3, 5, 6, 4} {0, 0, 1, 1, 1, 0, 0}
																								Flipped Triad fpi=7 BC_8 L fp_sm=3→50H	Not Flipped Triad fpi=4 BC_8 L fp_sm=3→50H
239	$\overline{c} \overset{+}{y_m} \hat{L}$		{BC8, E7, E6, E5, snubH4 24−2, 1Icosab, ring1, H4ring4}	$0apggsscc$ 010011000_2	Bn{	1	0	1	0	1	1	1	1 }	Rt{	−1	0	−1	−1	−2	−2	−1	−1 }	$\overline{\text{Pm}}$ 61	{{1, 2, 4}, {1, 3, 5}, {1, 6, 7}, {2, 3, 6}, {1, 2, 3}, {1, 4, 6}, {1, 5, 7}, {2, 4, 7, 5}, {3, 4, 7}, {4, 6, 5}}	{{1, 2, 3}, {1, 4, 6}, {1, 5, 7}, {2, 6, 5}, {3, 4, 5}, {3, 7, 6}}
					E8{	$\frac{1}{2}$	$-\frac{1}{2}$	$\frac{1}{2}$	$-\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$ }	Wt{	−1	1	−1	1	−1	0	0	1 }			
					Ph{	$\frac{1}{2}$	$-\frac{1}{2}$	$\frac{1}{\sqrt{2}}$	0	$\frac{1}{2}$	$\frac{\sqrt{3}}{2}$	0	0 }	Ht 9											
																								flat triad/mask bits {1, 4, 2, 3, 5, 6, 7} {0, 0, 0, 0, 1, 0, 1}	flat triad/mask bits {1, 2, 3, 4, 6, 5, 7} {0, 0, 0, 0, 1, 0, 1}
																								Flipped Triad fpi=4 BC_8 R fp_sm=3→57H	Not Flipped Triad fpi=7 BC_8 R fp_sm=3→57H
240	$\overline{\nu_e} \overset{0}{\hat{}}$		{BC8, E7, E6, E5, snubH4 24−2, snubH4 16−2,	$0apggsscc$ 011011000_2	Bn{	1	0	0	1	1	1	1	1 }	Rt{	−1	0	−1	−2	−2	−2	−1	−1 }	$\overline{\text{Dy}}$ 66	{{1, 3, 2}, {1, 6, 4}, {1, 7, 5}, {2, 4, 7}, {1, 4, 2}, {1, 5, 3}, {1, 7, 6}, {2, 3, 6, 5}, {3, 4, 5}, {3, 7, 6}}	{{1, 4, 2}, {1, 5, 3}, {1, 7, 6}, {2, 3, 7, 5}, {3, 4, 7}, {4, 6, 5}}
					E8{	$\frac{1}{2}$	$-\frac{1}{2}$	$-\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$ }	Wt{	−1	1	0	−1	0	0	0	1 }			

wm L. 1Icosab, ring4, H4ring2} Ph{ $\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{\sqrt{2}}$ 0 $\frac{1}{2}$ $\frac{\sqrt{3}}{2}$ 0 0 } Ht 10 ∞

flat triad/mask bits
{1, 2, 3, 6, 4, 7, 5}
{1, 1, 1, 0, 1, 0, 1}

flat triad/mask bits
{1, 4, 2, 5, 3, 7, 6}
{1, 1, 1, 0, 1, 0, 1}





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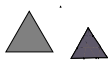
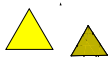
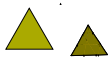
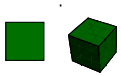
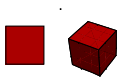
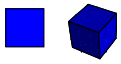
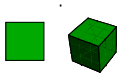
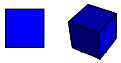
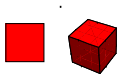
Seq #	Symbol	2D/3D Shape	Groups	Particle Quantum Bits	Binary / E8 / Physics Coordinates	Algebra Root Weight / Height / Rt#=Atomic Element Number -->	Ele #	Octonions
19	$\nu_\tau^{\,0\vee}$ $w_d^{\,L}$		{BC8, E7, E6, 6Cube, C4, snubH4 24−2, 2Dodecaa, ring2, H4ring3}	$0apggsscc$ 001110000_2	Bn{ 0 1 0 0 1 0 0 0 } E8{ $-\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ } Ph{ $-\frac{1}{2}$ $\frac{1}{2}$ 0 $-\frac{1}{\sqrt{2}}$ $\frac{1}{2}$ $-\frac{\sqrt{3}}{2}$ 0 0 }	Rt{ 1 0 1 1 1 2 1 1 } Wt{ 1 −1 1 0 −1 1 0 −1 } Ht 8	Cs 55	Flipped Triad fpi=23 BC_8 R fp_sm=2→06H {{1, 2, 6}, {1, 7, 3}, {1, 5, 4}, {2, 3, 4}}{{1, 6, 2}, {1, 3, 7}, {1, 5, 4}, {2, 3, 5 {2, 5, 7}, {3, 5, 6}, {4, 6, 7}} flat triad/mask bits {1, 6, 2, 7, 3, 5, 4} {0, 1, 1, 0, 0, 0, 0} Not Flipped Triad fpi=24 BC_8 R fp_sm=3→05H {{1, 6, 2}, {1, 3, 7}, {1, 5, 4}, {2, 3, 5 {2, 4, 7}, {3, 4, 6}, {5, 6, 7}} flat triad/mask bits {1, 6, 2, 3, 7, 5, 4} {1, 0, 1, 0, 0, 0, 0}
24	$\nu_\tau^{\,0\vee}$ $w_m^{\,R}$		{BC8, E7, E6, 6Cube, C4, snubH4 24−2, 2Dodecaa, ring4, H4ring4}	$0apggsscc$ 001111100_2	Bn{ 0 0 1 0 1 0 0 0 } E8{ $-\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ } Ph{ $-\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{\sqrt{2}}$ 0 $\frac{1}{2}$ $-\frac{\sqrt{3}}{2}$ 0 0 }	Rt{ 1 0 0 1 1 2 1 1 } Wt{ 1 0 −1 1 −1 1 0 −1 } Ht 7	Cd 48	Flipped Triad fpi=23 BC_8 R fp_sm=2→35H {{1, 6, 2}, {1, 3, 7}, {1, 5, 4}, {2, 3, 4}}{{1, 6, 2}, {1, 3, 7}, {1, 5, 4}, {2, 3, 5 {2, 7, 5}, {3, 6, 5}, {4, 6, 7}} flat triad/mask bits {1, 2, 6, 3, 7, 5, 4} {1, 0, 1, 0, 1, 1, 0} Not Flipped Triad fpi=24 BC_8 R fp_sm=3→36H {{1, 6, 2}, {1, 3, 7}, {1, 5, 4}, {2, 3, 5 {2, 7, 4}, {3, 6, 4}, {5, 6, 7}} flat triad/mask bits {1, 2, 6, 7, 3, 5, 4} {0, 1, 1, 0, 1, 1, 0}
28	$\tau^{\,-\vee}$ $y_m^{\,R}$		{BC8, E7, E6, 6Cube, C4, snubH4 24−2, snubH4 16−2, 2Dodecaa, ring3, H4ring3}	$0apggsscc$ 000111100_2	Bn{ 0 0 0 1 1 0 0 0 } E8{ $-\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ } Ph{ $-\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{\sqrt{2}}$ 0 $\frac{1}{2}$ $-\frac{\sqrt{3}}{2}$ 0 0 }	Rt{ 1 0 0 0 1 2 1 1 } Wt{ 1 0 0 −1 0 1 0 −1 } Ht 6	Nb 41	Flipped Triad fpi=24 BC_8 L fp_sm=3→31H {{1, 6, 2}, {1, 3, 7}, {1, 4, 5}, {2, 3, 5}}{{1, 2, 6}, {1, 7, 3}, {1, 4, 5}, {2, 3, 4 {2, 7, 4}, {3, 6, 4}, {5, 6, 7}} flat triad/mask bits {1, 2, 6, 3, 7, 4, 5} {1, 0, 0, 0, 1, 1, 0} Not Flipped Triad fpi=23 BC_8 L fp_sm=2→32H {{1, 2, 6}, {1, 7, 3}, {1, 4, 5}, {2, 3, 4 {2, 7, 5}, {3, 6, 5}, {4, 6, 7}} flat triad/mask bits {1, 2, 6, 7, 3, 4, 5} {0, 1, 0, 0, 1, 1, 0}
129	$\tau^{\,-\vee}$ $y_d^{\,L}$		{BC8, E7, E6, 6Cube, C4, H4cell24, H4cell8, 2Dodecaa, ring5, H4ring3}	$0apggsscc$ 000110000_2	Bn{ 0 1 1 1 1 0 0 0 } E8{ $-\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ } Ph{ $-\frac{1}{2}$ $\frac{1}{2}$ 0 $\frac{1}{\sqrt{2}}$ $\frac{1}{2}$ $-\frac{\sqrt{3}}{2}$ 0 0 }	Rt{ 1 0 1 2 3 4 2 2 } Wt{ 0 −1 0 0 0 1 0 −1 } Ht 15	Ac 89	Flipped Triad fpi=24 BC_8 L fp_sm=3→02H {{1, 2, 6}, {1, 7, 3}, {1, 4, 5}, {2, 3, 5}}{{1, 6, 2}, {1, 3, 7}, {1, 4, 5}, {2, 3, 4 {2, 4, 7}, {3, 4, 6}, {5, 6, 7}} flat triad/mask bits {1, 6, 2, 7, 3, 4, 5} {0, 1, 0, 0, 0, 0, 0} Not Flipped Triad fpi=23 BC_8 L fp_sm=2→01H {{1, 6, 2}, {1, 7, 3}, {1, 4, 5}, {2, 3, 4 {2, 5, 7}, {3, 5, 6}, {4, 6, 7}} flat triad/mask bits {1, 6, 2, 3, 7, 4, 5} {1, 0, 0, 0, 0, 0, 0}
133	$\overline{d}^{\,+\to 1/3\vee}$ $\phi_m^{\,R}$		{BC8, E7, 6Cube, C4, snubH4 24−1, 2Dodecaa, ring2, H4ring2}	$0apggsscc$ 010011101_2	Bn{ 0 1 1 0 1 1 0 0 } E8{ $-\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ } Ph{ $-\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{\sqrt{2}}$ 0 $\frac{1}{2}$ $-\frac{1}{2\sqrt{3}}$ $-\frac{1}{\sqrt{2}}$ $-\frac{1}{\sqrt{6}}$ }	Rt{ 1 0 1 2 2 3 2 2 } Wt{ 0 −1 0 1 −1 0 1 0 } Ht 13	Hg 80	Flipped Triad fpi=10 BC_8 L fp_sm=5→44H {{1, 2, 4}, {1, 3, 6}, {1, 7, 5}, {2, 3, 7}}{{1, 4, 2}, {1, 3, 5}, {1, 7, 6}, {2, 7, 3 {2, 5, 6}, {3, 4, 5}, {4, 7, 6}} flat triad/mask bits {1, 4, 2, 3, 6, 7, 5} {0, 0, 1, 0, 0, 0, 1} Not Flipped Triad fpi=8 BC_8 L fp_sm=2→4DH {{1, 4, 2}, {1, 3, 5}, {1, 7, 6}, {2, 7, 3 {2, 5, 6}, {3, 4, 6}, {4, 7, 5}} flat triad/mask bits {1, 4, 2, 3, 5, 7, 6} {1, 0, 1, 1, 0, 0, 1}
135	$\overline{d}^{\,1/3\vee}$ $m_m^{\,R}$		{BC8, H4cell24, H4cell8, Hamming, Idempot, 2Dodecaa, ring3, H4ring1}	$0apggsscc$ 010011111_2	Bn{ 0 1 1 0 1 0 0 1 } E8{ $-\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ } Ph{ $-\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{\sqrt{2}}$ 0 $\frac{1}{2}$ $-\frac{1}{2\sqrt{3}}$ 0 $\sqrt{\frac{2}{3}}$ }	Rt{ −1 −1 −1 −1 −2 −2 −1 −2 } Wt{ 0 −1 0 1 −1 1 0 −1 } Ht 11	$\overline{\text{Ta}}$ 73	Flipped Triad fpi=13 BC_8 L fp_sm=6→45H {{1, 5, 2}, {1, 3, 4}, {1, 7, 6}, {2, 3, 6}}{{1, 2, 5}, {1, 4, 3}, {1, 7, 6}, {2, 3, 7 {2, 4, 7}, {3, 5, 7}, {4, 6, 5}} flat triad/mask bits {1, 2, 5, 3, 4, 7, 6} {1, 0, 1, 0, 0, 0, 1} Not Flipped Triad fpi=14 BC_8 L fp_sm=7→46H {{1, 5, 2}, {1, 3, 4}, {1, 7, 6}, {2, 3, 7 {2, 4, 6}, {3, 5, 6}, {4, 7, 5}} flat triad/mask bits {1, 2, 5, 4, 3, 7, 6} {0, 1, 1, 0, 0, 0, 1}
140	$\overline{u}^{\,0\to -2/3\vee}$ $g_m^{\,R}$		{BC8, 6Cube, H4cell24, H4cell8, Hamming, 2Dodecaa, ring3, H4ring1}	$0apggsscc$ 011011110_2	Bn{ 0 1 0 1 1 0 1 0 } E8{ $-\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ } Ph{ $-\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{\sqrt{2}}$ 0 $\frac{1}{2}$ $-\frac{1}{2\sqrt{3}}$ $\frac{1}{\sqrt{2}}$ $-\frac{1}{\sqrt{6}}$ }	Rt{ 1 0 1 1 2 3 1 2 } Wt{ 0 −1 1 −1 0 1 −1 0 } Ht 11	Lu 71	Flipped Triad fpi=11 BC_8 R fp_sm=1→4BH {{1, 4, 2}, {1, 7, 3}, {1, 5, 6}, {2, 5, 3}}{{1, 2, 4}, {1, 3, 7}, {1, 5, 6}, {2, 6, 3 {2, 6, 7}, {3, 4, 6}, {4, 7, 5}} flat triad/mask bits {1, 2, 4, 7, 3, 5, 6} {1, 1, 0, 1, 0, 0, 1} Not Flipped Triad fpi=12 BC_8 R fp_sm=4→48H {{1, 4, 2}, {1, 7, 3}, {1, 5, 6}, {2, 6, 3 {2, 5, 7}, {3, 4, 5}, {4, 7, 6}} flat triad/mask bits {1, 2, 4, 3, 7, 5, 6} {0, 0, 0, 1, 0, 0, 1}
141	$\overline{u}^{\,-2/3\vee}$ $b_m^{\,R}$		{BC8, snubH4 24−3, 2Dodecaa, ring2, H4ring3}	$0apggsscc$ 011011111_2	Bn{ 0 1 0 1 1 0 0 1 } E8{ $-\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ } Ph{ $-\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{\sqrt{2}}$ 0 $\frac{1}{2}$ $-\frac{1}{2\sqrt{3}}$ 0 $\sqrt{\frac{2}{3}}$ }	Rt{ −1 −1 −1 −2 −2 −2 −1 −2 } Wt{ 0 −1 1 −1 0 1 0 −1 } Ht 12	$\overline{\text{Pt}}$ 78	Flipped Triad fpi=14 BC_8 R fp_sm=7→41H {{1, 5, 2}, {1, 3, 4}, {1, 6, 7}, {2, 3, 7}}{{1, 2, 5}, {1, 4, 3}, {1, 6, 7}, {2, 3, 6 {2, 4, 6}, {3, 5, 6}, {4, 7, 5}} flat triad/mask bits {1, 2, 5, 3, 4, 6, 7} {1, 0, 0, 0, 0, 0, 1} Not Flipped Triad fpi=13 BC_8 R fp_sm=6→45H {{1, 5, 2}, {1, 3, 4}, {1, 7, 6}, {2, 3, 6}}{{1, 2, 5}, {1, 4, 3}, {1, 7, 6}, {2, 3, 7 {2, 4, 6}, {3, 5, 7}, {4, 6, 5}} flat triad/mask bits {1, 2, 5, 4, 3, 6, 7} {0, 1, 0, 0, 0, 0, 1}
146	$t^{\,0\to 2/3\vee}$ $s_d^{\,L}$		{BC8, snubH4 24−3, snubH4 16−3, 2Dodecaa, ring3, H4ring3}	$0apggsscc$ 001110010_2	Bn{ 0 1 0 0 1 1 0 1 } E8{ $-\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ } Ph{ $-\frac{1}{2}$ $\frac{1}{2}$ 0 $-\frac{1}{\sqrt{2}}$ $\frac{1}{2}$ $\frac{1}{2\sqrt{3}}$ $-\frac{1}{\sqrt{2}}$ $\frac{1}{\sqrt{6}}$ }	Rt{ −1 −1 −1 −2 −3 −3 −1 −2 } Wt{ 0 −1 1 0 −1 0 1 0 } Ht 14	$\overline{\text{Fr}}$ 87	Flipped Triad fpi=29 BC_8 R fp_sm=7→0DH {{1, 7, 2}, {1, 3, 6}, {1, 5, 4}, {2, 4, 3}}{{1, 2, 7}, {1, 3, 5}, {1, 6, 4}, {2, 3, 4 {2, 5, 6}, {3, 5, 7}, {4, 6, 7}} flat triad/mask bits {1, 2, 7, 3, 6, 5, 4} {1, 0, 1, 1, 0, 0, 0} Not Flipped Triad fpi=27 BC_8 R fp_sm=4→04H {{1, 7, 2}, {1, 3, 5}, {1, 6, 4}, {2, 3, 4 {2, 5, 6}, {3, 6, 7}, {4, 5, 7}} flat triad/mask bits {1, 2, 7, 3, 5, 6, 4} {0, 0, 1, 0, 0, 0, 0}
147	$t^{\,0\to 2/3\vee}$ $s_d^{\,L}$		{BC8, E7, H4cell24, H4cell8, 2Dodecaa, ring5, H4ring3}	$0apggsscc$ 001110001_2	Bn{ 0 1 0 0 1 0 1 1 } E8{ $-\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ } Ph{ $-\frac{1}{2}$ $\frac{1}{2}$ 0 $-\frac{1}{\sqrt{2}}$ $\frac{1}{2}$ $\frac{1}{2\sqrt{3}}$ $\frac{1}{\sqrt{2}}$ $\frac{1}{\sqrt{6}}$ }	Rt{ −1 −1 −1 −2 −3 −3 −2 −2 } Wt{ 0 −1 1 0 −1 1 −1 0 } Ht 15	$\overline{\text{Th}}$ 90	Flipped Triad fpi=26 BC_8 R fp_sm=8→0CH {{1, 5, 2}, {1, 3, 4}, {1, 6, 5}, {2, 6, 3}}{{1, 7, 2}, {1, 4, 3}, {1, 6, 5}, {2, 5, 3 {2, 4, 5}, {3, 5, 7}, {4, 6, 7}} flat triad/mask bits {1, 7, 2, 3, 4, 6, 5} {0, 0, 1, 1, 0, 0, 0} Not Flipped Triad fpi=25 BC_8 R fp_sm=5→0FH {{1, 5, 2}, {1, 4, 3}, {1, 6, 5}, {2, 5, 3 {2, 4, 6}, {3, 6, 7}, {4, 5, 7}} flat triad/mask bits {1, 7, 2, 4, 3, 6, 5} {1, 1, 1, 1, 0, 0, 0}
149	$\overline{u}^{\,0\to -2/3\vee}$ $t_d^{\,L}$		{BC8, E7, 6Cube, C4, H4cell24, H4cell8, Hamming, 2Dodecaa, ring4, H4ring4}	$0apggsscc$ 011010001_2	Bn{ 0 0 1 1 1 1 0 0 } E8{ $-\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ } Ph{ $-\frac{1}{2}$ $-\frac{1}{2}$ 0 $\frac{1}{\sqrt{2}}$ $\frac{1}{2}$ $-\frac{1}{2\sqrt{3}}$ $-\frac{1}{\sqrt{2}}$ $-\frac{1}{\sqrt{6}}$ }	Rt{ 1 0 0 1 2 3 2 2 } Wt{ 0 0 −1 0 0 0 1 0 } Ht 11	Yb 70	Flipped Triad fpi=8 BC_8 R fp_sm=2→79H {{1, 4, 2}, {1, 3, 5}, {1, 6, 7}, {2, 7, 3}}{{1, 2, 4}, {1, 3, 6}, {1, 5, 7}, {2, 3, 7 {2, 6, 5}, {3, 6, 4}, {4, 7, 5}} flat triad/mask bits {1, 2, 4, 3, 5, 6, 7} {1, 0, 0, 1, 1, 1, 1} Not Flipped Triad fpi=10 BC_8 R fp_sm=5→70H {{1, 4, 2}, {1, 3, 6}, {1, 5, 7}, {2, 3, 7 {2, 6, 5}, {3, 5, 4}, {4, 7, 6}} flat triad/mask bits {1, 2, 4, 3, 6, 5, 7} {0, 0, 0, 0, 1, 1, 1}
150	$\overline{\cdot\cdot}^{\,0\to -2/3}$		{BC8, 6Cube, snubH4 24−4,	$0apggsscc$	Bn{ 0 0 1 1 1 0 1 0 } E8{ $-\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ }	Rt{ 1 0 0 1 2 3 1 2 } Wt{ 0 0 −1 0 0 1 −1 0 }	Gd	Flipped Triad fpi=11 BC_8 R fp_sm=1→78H {{1, 2, 4}, {1, 3, 7}, {1, 5, 6}, {2, 5, 3}}{{1, 4, 2}, {1, 7, 3}, {1, 5, 6}, {2, 6, 3 {2, 7, 6}, {3, 6, 4}, {4, 7, 5}} Not Flipped Triad fpi=12 BC_8 R fp_sm=4→7BH {{1, 4, 2}, {1, 7, 3}, {1, 5, 6}, {2, 6, 3 {2, 7, 5}, {3, 5, 4}, {4, 7, 6}}

Seq ♯	Symbol	2D/3D Shape	Groups	Particle Quantum Bits	Binary / E8 / Physics Coordinates	Algebra Root Weight / Height / Rt♯=Atomic Element Number −−>	Ele ♯	Octonions
150	$^{u}_{g_d}{}^{\vee}_{L}$		Idempot, 2Dodecaa, ring5, H4ring1}	011010010_2	Bn{ $-\frac{1}{2}$, $-\frac{1}{2}$, 0, $\frac{1}{\sqrt{2}}$, $\frac{1}{2}$, $-\frac{1}{2\sqrt{3}}$, $\frac{1}{\sqrt{2}}$, $-\frac{1}{\sqrt{6}}$ } E8{ $-\frac{1}{2}$, $-\frac{1}{2}$, $\frac{1}{2}$, $-\frac{1}{2}$, $\frac{1}{2}$, $\frac{1}{2}$, $\frac{1}{2}$, $-\frac{1}{2}$ } Ph{ $-\frac{1}{2}$, $-\frac{1}{2}$, $\frac{1}{\sqrt{2}}$, 0, $\frac{1}{2}$, $\frac{1}{2\sqrt{3}}$, 0, $-\sqrt{\frac{2}{3}}$ }	Wt{ 0 0 −1 0 0 1 −1 0 } Ht 10	64	flat triad/mask bits {1, 4, 2, 3, 7, 5, 6} {0, 0, 0, 1, 1, 1, 1} Flipped Triad fpi=28 BC_8 R fp_sm=3→36H {{1, 2, 7}, {1, 5, 3}, {1, 6, 4}, {2, 3, 6}}, {{2, 5, 4}, {3, 7, 4}, {5, 6, 7}} flat triad/mask bits {1, 4, 2, 7, 3, 5, 6} {1, 1, 0, 1, 1, 1, 1} Not Flipped Triad fpi=30 BC_8 R fp_sm=6→3DH {{1, 7, 2}, {1, 3, 6}, {1, 5, 4}, {2, 5, 3}, {2, 6, 4}, {3, 7, 4}, {5, 6, 7}}
155	$^{t}_{b_m}{}^{2/3}_{R}$		{BC8, 6Cube, snubH4 24−1, snubH4 16−1, 2Dodecaa, ring3, H4ring2}	$0apggsscc$ 001111111_2	Bn{ 0, 0, 1, 0, 1, 1, 1, 0 } E8{ $-\frac{1}{2}$, $-\frac{1}{2}$, $\frac{1}{2}$, $-\frac{1}{2}$, $\frac{1}{2}$, $\frac{1}{2}$, $\frac{1}{2}$, $-\frac{1}{2}$ } Ph{ $-\frac{1}{2}$, $-\frac{1}{2}$, $\frac{1}{\sqrt{2}}$, 0, $\frac{1}{2}$, $\frac{1}{2\sqrt{3}}$, 0, $-\sqrt{\frac{2}{3}}$ }	Rt{ 1 0 0 1 1 2 1 2 } Wt{ 0 0 −1 1 −1 0 0 1 } Ht 8	I 53	flat triad/mask bits {1, 2, 7, 5, 3, 6, 4} {0, 1, 1, 0, 1, 1, 0} Flipped Triad fpi=29 BC_8 R fp_sm=7→3EH {{1, 2, 7}, {1, 6, 3}, {1, 5, 4}, {2, 4, 3}}, {{2, 6, 5}, {3, 7, 5}, {4, 6, 7}} flat triad/mask bits {1, 7, 2, 3, 5, 4, 6} {1, 0, 1, 1, 1, 1, 0} Not Flipped Triad fpi=27 BC_8 R fp_sm=4→37H {{1, 7, 2}, {1, 5, 3}, {1, 6, 4}, {2, 3, 4}, {2, 6, 5}, {3, 7, 6}, {4, 5, 7}}
156	$^{t}_{g_m}{}^{0\to 2/3}_{R}$		{BC8, H4cell24, H4cell8, 2Dodecaa, ring1, H4ring2}	$0apggsscc$ 001111110_2	Bn{ 0, 0, 1, 0, 1, 1, 0, 1 } E8{ $-\frac{1}{2}$, $-\frac{1}{2}$, $\frac{1}{2}$, $-\frac{1}{2}$, $\frac{1}{2}$, $\frac{1}{2}$, $-\frac{1}{2}$, $\frac{1}{2}$ } Ph{ $-\frac{1}{2}$, $-\frac{1}{2}$, $\frac{1}{\sqrt{2}}$, 0, $\frac{1}{2}$, $\frac{1}{2\sqrt{3}}$, $-\frac{1}{\sqrt{2}}$, $\frac{1}{\sqrt{6}}$ }	Rt{ −1 −1 −2 −2 −3 −3 −1 −2 } Wt{ 0 0 −1 1 −1 0 1 0 } Ht 15	U 92	flat triad/mask bits {1, 7, 2, 6, 3, 5, 4} {0, 1, 1, 1, 1, 1, 0} Flipped Triad fpi=28 BC_8 R fp_sm=3→28H {{1, 2, 7}, {1, 3, 5}, {1, 4, 6}, {2, 6, 3}}, {{2, 4, 5}, {3, 7, 4}, {5, 6, 7}} flat triad/mask bits {1, 7, 2, 5, 3, 6, 4} {1, 1, 1, 0, 1, 1, 0} Not Flipped Triad fpi=27 BC_8 R fp_sm=4→37H {{1, 7, 2}, {1, 5, 3}, {1, 6, 4}, {2, 3, 4}, {2, 6, 5}, {3, 7, 6}, {4, 5, 7}}
159	$^{t}_{b_m}{}^{2/3\to -1/3}_{L}$		{BC8, 6Cube, H4cell24, H4cell8, 2Dodecaa, ring1, H4ring2}	$0apggsscc$ 001111011_2	Bn{ 0, 0, 0, 1, 1, 1, 1, 0 } E8{ $-\frac{1}{2}$, $-\frac{1}{2}$, $-\frac{1}{2}$, $\frac{1}{2}$, $\frac{1}{2}$, $\frac{1}{2}$, $\frac{1}{2}$, $-\frac{1}{2}$ } Ph{ $-\frac{1}{2}$, $-\frac{1}{2}$, $-\frac{1}{\sqrt{2}}$, 0, $\frac{1}{2}$, $\frac{1}{2\sqrt{3}}$, 0, $-\sqrt{\frac{2}{3}}$ }	Rt{ 1 0 0 0 1 2 1 2 } Wt{ 0 0 0 −1 0 0 0 1 } Ht 7	Ag 47	flat triad/mask bits {1, 2, 7, 3, 5, 4, 6} {0, 0, 0, 1, 0, 1, 0} Flipped Triad fpi=28 BC_8 R fp_sm=3→28H {{1, 2, 7}, {1, 3, 5}, {1, 4, 6}, {2, 6, 3}}, {{2, 4, 5}, {3, 7, 4}, {5, 6, 7}} flat triad/mask bits {1, 7, 2, 6, 3, 4, 5} {1, 1, 0, 0, 0, 1, 0} Not Flipped Triad fpi=30 BC_8 R fp_sm=6→23H {{1, 7, 2}, {1, 6, 3}, {1, 4, 5}, {2, 3, 5}, {2, 4, 6}, {3, 7, 4}, {5, 6, 7}}
161	$^{t}_{r_m}{}^{0\to -1/3}_{L}$		{BC8, E7, snubH4 24−4, 2Dodecaa, ring2, H4ring2}	$0apggsscc$ 001111001_2	Bn{ 0, 0, 0, 1, 1, 0, 1, 1 } E8{ $-\frac{1}{2}$, $-\frac{1}{2}$, $-\frac{1}{2}$, $\frac{1}{2}$, $\frac{1}{2}$, $-\frac{1}{2}$, $\frac{1}{2}$, $\frac{1}{2}$ } Ph{ $-\frac{1}{2}$, $-\frac{1}{2}$, $-\frac{1}{\sqrt{2}}$, 0, $\frac{1}{2}$, $\frac{1}{2\sqrt{3}}$, $\frac{1}{\sqrt{2}}$, $\frac{1}{\sqrt{6}}$ }	Rt{ −1 −1 −2 −3 −3 −3 −2 −2 } Wt{ 0 0 0 −1 0 1 −1 0 } Ht 17	Es 99	flat triad/mask bits {1, 2, 7, 3, 4, 5, 6} {1, 0, 0, 0, 0, 1, 0} Flipped Triad fpi=26 BC_8 R fp_sm=8→21H {{1, 7, 2}, {1, 3, 4}, {1, 5, 6}, {2, 3, 6}}, {{2, 4, 5}, {3, 7, 5}, {4, 6, 7}} flat triad/mask bits {1, 2, 7, 4, 3, 5, 6} {0, 1, 0, 0, 0, 1, 0} Not Flipped Triad fpi=25 BC_8 R fp_sm=5→22H {{1, 2, 7}, {1, 4, 3}, {1, 5, 6}, {2, 3, 5}, {2, 4, 6}, {3, 7, 6}, {4, 5, 7}}
163	$^{\overline{e}}_{y_d}{}^{+}_{L}$		{BC8, E7, E6, E5, H4cell24, H4cell8, Hamming, 2Dodecaa, ring4, H4ring4}	$0apggsscc$ 010010000_2	Bn{ 0, 0, 0, 0, 1, 1, 1, 1 } E8{ $-\frac{1}{2}$, $-\frac{1}{2}$, $-\frac{1}{2}$, $-\frac{1}{2}$, $\frac{1}{2}$, $\frac{1}{2}$, $\frac{1}{2}$, $\frac{1}{2}$ } Ph{ $-\frac{1}{2}$, $-\frac{1}{2}$, 0, $-\frac{1}{\sqrt{2}}$, $\frac{1}{2}$, $\frac{\sqrt{3}}{2}$, 0, 0 }	Rt{ −1 −1 −2 −3 −4 −4 −2 −2 } Wt{ 0 0 0 0 −1 0 0 1 } Ht 19	Db 105	flat triad/mask bits {1, 2, 4, 3, 5, 7, 6} {1, 0, 1, 1, 1, 1, 1} Flipped Triad fpi=7 BC_8 L fp_sm=3→7DH {{1, 4, 2}, {1, 3, 5}, {1, 7, 6}, {2, 6, 3}}, {{1, 4, 6}, {2, 7, 5}, {3, 7, 4}, {4, 6, 5}} flat triad/mask bits {1, 3, 2, 4, 6, 7, 5} {1, 0, 1, 1, 1, 1, 1} Not Flipped Triad fpi=4 BC_8 L fp_sm=3→7DH {{1, 7, 2}, {1, 3, 4}, {1, 5, 6}, {2, 3, 5}, {2, 4, 5}, {3, 7, 5}, {4, 6, 7}}
245	$^{\overline{e}}_{y_m}{}^{+}_{R}$		{BC8, E7, E6, E5, snubH4 24−1, 2Dodecaa, ring5, H4ring1}	$0apggsscc$ 010011100_2	Bn{ 0, 1, 1, 0, 1, 1, 1, 1 } E8{ $-\frac{1}{2}$, $\frac{1}{2}$, $\frac{1}{2}$, $-\frac{1}{2}$, $\frac{1}{2}$, $\frac{1}{2}$, $\frac{1}{2}$, $\frac{1}{2}$ } Ph{ $-\frac{1}{2}$, $\frac{1}{2}$, $\frac{1}{\sqrt{2}}$, 0, $\frac{1}{2}$, $\frac{\sqrt{3}}{2}$, 0, 0 }	Rt{ −1 −1 −1 −1 −2 −2 −1 −1 } Wt{ −1 −1 0 1 −1 0 0 1 } Ht 10	Er 68	flat triad/mask bits {1, 4, 2, 5, 3, 7, 6} {0, 1, 1, 1, 0, 0, 1} Flipped Triad fpi=7 BC_8 L fp_sm=3→4EH {{1, 2, 4}, {1, 5, 3}, {1, 7, 6}, {2, 6, 3}}, {{2, 5, 7}, {3, 4, 7}, {4, 6, 5}} flat triad/mask bits {1, 2, 3, 6, 4, 7, 5} {0, 1, 1, 1, 0, 0, 1} Not Flipped Triad fpi=4 BC_8 L fp_sm=3→4EH {{1, 2, 4}, {1, 5, 3}, {1, 7, 6}, {2, 6, 3}}, {{2, 5, 6}, {3, 4, 5}, {3, 7, 6}}
246	$^{\overline{v_e}}_{w_m}{}^{0}_{R}$		{BC8, E7, E6, E5, snubH4 24−3, 2Dodecaa, ring4, H4ring4}	$0apggsscc$ 011011100_2	Bn{ 0, 1, 0, 1, 1, 1, 1, 1 } E8{ $-\frac{1}{2}$, $\frac{1}{2}$, $-\frac{1}{2}$, $\frac{1}{2}$, $\frac{1}{2}$, $\frac{1}{2}$, $\frac{1}{2}$, $\frac{1}{2}$ } Ph{ $-\frac{1}{2}$, $\frac{1}{2}$, $-\frac{1}{\sqrt{2}}$, 0, $\frac{1}{2}$, $\frac{\sqrt{3}}{2}$, 0, 0 }	Rt{ −1 −1 −1 −2 −2 −2 −1 −1 } Wt{ −1 −1 1 −1 0 0 0 1 } Ht 11	W 74	flat triad/mask bits {1, 2, 3, 4, 6, 5, 7} {1, 0, 0, 1, 0, 0, 1} Flipped Triad fpi=4 BC_8 R fp_sm=3→49H {{1, 3, 2}, {1, 4, 6}, {1, 5, 7}, {2, 7, 4}}, {{2, 5, 6}, {3, 4, 5}, {3, 7, 6}} flat triad/mask bits {1, 4, 2, 3, 5, 6, 7} {1, 0, 0, 1, 0, 0, 1} Not Flipped Triad fpi=7 BC_8 R fp_sm=3→49H {{1, 4, 2}, {1, 3, 5}, {1, 6, 7}, {2, 6, 3}, {2, 5, 7}, {3, 4, 7}, {4, 6, 5}}
247	$^{\overline{v_e}}_{w_d}{}^{0}_{L}$		{BC8, E7, E6, E5, snubH4 24−4, snubH4 16−4, 2Dodecaa, ring3, H4ring2}	$0apggsscc$ 011010000_2	Bn{ 0, 0, 1, 1, 1, 1, 1, 1 } E8{ $-\frac{1}{2}$, $-\frac{1}{2}$, $\frac{1}{2}$, $\frac{1}{2}$, $\frac{1}{2}$, $\frac{1}{2}$, $\frac{1}{2}$, $\frac{1}{2}$ } Ph{ $-\frac{1}{2}$, $-\frac{1}{2}$, 0, $\frac{1}{\sqrt{2}}$, $\frac{1}{2}$, $\frac{\sqrt{3}}{2}$, 0, 0 }	Rt{ −1 −1 −2 −2 −2 −2 −1 −1 } Wt{ −1 0 −1 0 0 0 0 1 } Ht 12	Au 79	flat triad/mask bits {1, 3, 2, 6, 4, 5, 7} {0, 1, 0, 1, 1, 1, 1} Flipped Triad fpi=4 BC_8 R fp_sm=3→7AH {{1, 2, 3}, {1, 6, 4}, {1, 5, 7}, {2, 7, 4}}, {{2, 6, 5}, {3, 5, 4}, {3, 7, 6}} flat triad/mask bits {1, 2, 4, 5, 3, 6, 7} {0, 1, 0, 1, 1, 1, 1} Not Flipped Triad fpi=7 BC_8 R fp_sm=3→7AH {{1, 2, 4}, {1, 5, 3}, {1, 6, 7}, {2, 6, 3}, {2, 7, 5}, {3, 7, 4}, {4, 6, 5}}
10	$^{v_e}_{w_d}{}^{0}_{L}$		{BC8, E7, E6, 6Cube, E5, C4, snubH4 24−4, snubH4 16−4, 3Cube, B2=C2, 2Dodecab, ring3, H4ring2}	$0apggsscc$ 001010000_2	Bn{ 1, 1, 0, 0, 0, 0, 0, 0 } E8{ $\frac{1}{2}$, $\frac{1}{2}$, $-\frac{1}{2}$, $-\frac{1}{2}$, $-\frac{1}{2}$, $-\frac{1}{2}$, $-\frac{1}{2}$, $-\frac{1}{2}$ } Ph{ $\frac{1}{2}$, $\frac{1}{2}$, 0, $-\frac{1}{\sqrt{2}}$, $-\frac{1}{2}$, $-\frac{\sqrt{3}}{2}$, 0, 0 }	Rt{ 1 1 2 2 2 2 1 1 } Wt{ 1 0 1 0 0 0 0 −1 } Ht 12	Au 79	flat triad/mask bits {1, 2, 4, 3, 5, 7, 6} {1, 0, 1, 0, 0, 0, 0} Flipped Triad fpi=7 BC_8 R fp_sm=3→05H {{1, 4, 2}, {1, 3, 5}, {1, 7, 6}, {2, 3, 6}}, {{2, 5, 7}, {3, 4, 7}, {4, 5, 6}} flat triad/mask bits {1, 3, 2, 4, 6, 7, 5} {1, 0, 1, 0, 0, 0, 0} Not Flipped Triad fpi=4 BC_8 R fp_sm=3→05H {{1, 3, 2}, {1, 4, 6}, {1, 7, 5}, {2, 4, 7}, {2, 5, 6}, {3, 4, 5}, {3, 6, 7}}
11	$^{v_e}_{w_m}{}^{0}_{R}$		{BC8, E7, E6, 6Cube, E5, C4, snubH4 24−3, 3Cube, B2=C2, 2Dodecab, ring4, H4ring4}	$0apggsscc$ 001011100_2	Bn{ 1, 0, 1, 0, 0, 0, 0, 0 } E8{ $\frac{1}{2}$, $-\frac{1}{2}$, $\frac{1}{2}$, $-\frac{1}{2}$, $-\frac{1}{2}$, $-\frac{1}{2}$, $-\frac{1}{2}$, $-\frac{1}{2}$ } Ph{ $\frac{1}{2}$, $-\frac{1}{2}$, $\frac{1}{\sqrt{2}}$, 0, $-\frac{1}{2}$, $-\frac{\sqrt{3}}{2}$, 0, 0 }	Rt{ 1 1 1 2 2 2 1 1 } Wt{ 1 1 −1 1 0 0 0 −1 } Ht 11	W 74	flat triad/mask bits {1, 4, 2, 5, 3, 7, 6} {0, 1, 1, 0, 1, 1, 0} Flipped Triad fpi=7 BC_8 R fp_sm=3→36H {{1, 2, 4}, {1, 5, 3}, {1, 7, 6}, {2, 3, 6}}, {{2, 5, 7}, {3, 7, 4}, {4, 5, 6}} flat triad/mask bits {1, 2, 3, 6, 4, 7, 5} {0, 1, 1, 0, 1, 1, 0} Not Flipped Triad fpi=4 BC_8 R fp_sm=3→36H {{1, 2, 4}, {1, 5, 3}, {1, 7, 6}, {2, 3, 6}}, {{2, 6, 5}, {3, 5, 4}, {3, 6, 7}}
12	$^{e}_{y_m}{}^{-}_{R}$		{BC8, E7, E6, 6Cube, E5, C4, snubH4 24−1, 3Cube, 2Dodecab, ring5, H4ring1}	$0apggsscc$ 000011100_2	Bn{ 1, 0, 0, 1, 0, 0, 0, 0 } E8{ $\frac{1}{2}$, $-\frac{1}{2}$, $-\frac{1}{2}$, $\frac{1}{2}$, $-\frac{1}{2}$, $-\frac{1}{2}$, $-\frac{1}{2}$, $-\frac{1}{2}$ } Ph{ $\frac{1}{2}$, $-\frac{1}{2}$, $-\frac{1}{\sqrt{2}}$, 0, $-\frac{1}{2}$, $-\frac{\sqrt{3}}{2}$, 0, 0 }	Rt{ 1 1 1 1 2 2 1 1 } Wt{ 1 1 0 −1 1 0 0 −1 } Ht 10	Er 68	flat triad/mask bits {1, 2, 3, 4, 6, 5, 7} {1, 0, 0, 0, 1, 1, 0} Flipped Triad fpi=4 BC_8 L fp_sm=3→31H {{1, 3, 2}, {1, 4, 6}, {1, 5, 7}, {2, 4, 7}}, {{2, 6, 5}, {3, 5, 4}, {3, 6, 7}} flat triad/mask bits {1, 4, 2, 3, 5, 6, 7} {1, 0, 0, 0, 1, 1, 0} Not Flipped Triad fpi=7 BC_8 L fp_sm=3→31H {{1, 3, 2}, {1, 4, 6}, {1, 5, 7}, {2, 4, 7}}, {{2, 7, 5}, {3, 7, 4}, {4, 5, 6}}
94	e^{-}		{BC8, E7, E6, 6Cube, E5, C4, H4cell24, H4cell8,	$0apggsscc$	Bn{ 1, 1, 1, 1, 0, 0, 0, 0 } E8{ $\frac{1}{2}$, $\frac{1}{2}$, $\frac{1}{2}$, $\frac{1}{2}$, $-\frac{1}{2}$, $-\frac{1}{2}$, $-\frac{1}{2}$, $-\frac{1}{2}$ }	Rt{ 1 1 2 3 4 4 2 2 } Wt{ 0 0 0 0 1 0 0 −1 }	Db	{{1, 2, 3}, {1, 6, 4}, {1, 5, 7}, {2, 4, 7}}, {{2, 5, 6}, {3, 4, 5}, {3, 6, 7}} {{1, 2, 3}, {1, 5, 4}, {1, 6, 7}, {2, 3, 6}}, {{2, 5, 7}, {3, 4, 7}, {4, 5, 6}}

$\mathrm{y_d}\ \check{\mathrm{L}}$  3Cube, Hamming, 2Dodecab, ring4, H4ring4} 000010000_2

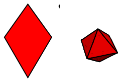
Ph{	$\frac{1}{2}$	$\frac{1}{2}$	0	$\frac{1}{\sqrt{2}}$	$-\frac{1}{2}$	$-\frac{\sqrt{3}}{2}$	0	0	}

Ht 19

105

flat triad/mask bits
{1, **3**, **2**, 6, 4, 5, 7}
{0, 1, 0, 0, 0, 0, 0}

flat triad/mask bits
{1, 2, 4, 5, 3, 6, 7}
{0, 1, 0, 0, 0, 0, 0}

96 $\overline{\mathrm{t}}{}_{\mathrm{r_m}}^{0\to1/3}\ \hat{\mathrm{L}}$  {BC8, E7, E6(27), 6Cube, C4, snubH4 24−4, 2Dodecab, ring2, H4ring2} 0apggsscc 011111001_2

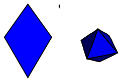
Bn{	1	1	1	0	0	1	0	0	}
E8{	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$-\frac{1}{2}$	$-\frac{1}{2}$	$\frac{1}{2}$	$-\frac{1}{2}$	$-\frac{1}{2}$	}
Ph{	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{\sqrt{2}}$	0	$-\frac{1}{2}$	$-\frac{1}{2\sqrt{3}}$	$-\frac{1}{\sqrt{2}}$	$-\frac{1}{\sqrt{6}}$	}

Rt{	1	1	2	3	3	3	2	2	}
Wt{	0	0	0	1	0	−1	1	0	}
Ht	17								

Es
99

Flipped
Triad fpi=25 BC_8 R fp_sm=5→5DH
{1, 7, 2}, {1, 3, 4}, {1, 6, 5}, {2, 5, 3},
{2, 6, 4}, {3, 6, 7}, {4, 7, 5}}
flat triad/mask bits
{1, **2**, **7**, 3, 4, 6, 5}
{1, 0, 1, 1, 1, 0, 1}

Not Flipped
Triad fpi=26 BC_8 R fp_sm=8→5EH
{1, 2, 7}, {1, 4, 3}, {1, 6, 5}, {2, 6, 3
{2, 5, 4}, {3, 5, 7}, {4, 7, 6}}
flat triad/mask bits
{1, 2, 7, 4, 3, 6, 5}
{0, 1, 1, 1, 1, 0, 1}

98 $\overline{\mathrm{t}}{}_{\mathrm{b_m}}^{-2/3\to1/3}\ \hat{\mathrm{L}}$  {BC8, H4cell24, H4cell8, 2Dodecab, ring1, H4ring2} 0apggsscc 011111011_2

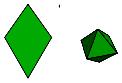
Bn{	1	1	1	0	0	0	0	1	}
E8{	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$-\frac{1}{2}$	$-\frac{1}{2}$	$-\frac{1}{2}$	$-\frac{1}{2}$	$\frac{1}{2}$	}
Ph{	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{\sqrt{2}}$	0	$-\frac{1}{2}$	$-\frac{1}{2\sqrt{3}}$	0	$\sqrt{\frac{2}{3}}$	}

Rt{	−1	0	0	0	−1	−2	−1	−2	}
Wt{	0	0	0	1	0	0	0	−1	}
Ht	7								

$\overline{\mathrm{Ag}}$
47

Flipped
Triad fpi=30 BC_8 R fp_sm=6→5CH
{1, 2, 7}, {1, 3, 6}, {1, 5, 4}, {2, 5, 3},
{2, 6, 4}, {3, 4, 7}, {5, 7, 6}}
flat triad/mask bits
{1, **7**, **2**, 3, 6, 5, 4}
{0, 0, 1, 1, 1, 0, 1}

Not Flipped
Triad fpi=28 BC_8 R fp_sm=3→57H
{1, 7, 2}, {1, 5, 3}, {1, 6, 4}, {2, 3, 6
{2, 5, 4}, {3, 4, 7}, {5, 7, 6}}
flat triad/mask bits
{1, **2**, **7**, 5, 3, 6, 4}
{1, 1, 1, 0, 1, 0, 1}

101 $\overline{\mathrm{t}}{}_{\mathrm{g_m}}^{0\to-2/3}\ \check{\mathrm{R}}$  {BC8, 6Cube, H4cell24, H4cell8, 2Dodecab, ring1, H4ring2} 0apggsscc 011111110_2

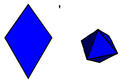
Bn{	1	1	0	1	0	0	1	0	}
E8{	$\frac{1}{2}$	$\frac{1}{2}$	$-\frac{1}{2}$	$\frac{1}{2}$	$-\frac{1}{2}$	$-\frac{1}{2}$	$\frac{1}{2}$	$-\frac{1}{2}$	}
Ph{	$\frac{1}{2}$	$\frac{1}{2}$	$-\frac{1}{\sqrt{2}}$	0	$-\frac{1}{2}$	$-\frac{1}{2\sqrt{3}}$	$\frac{1}{\sqrt{2}}$	$-\frac{1}{\sqrt{6}}$	}

Rt{	1	1	2	2	3	3	1	2	}
Wt{	0	0	1	−1	1	0	−1	0	}
Ht	15								

U
92

Flipped
Triad fpi=27 BC_8 R fp_sm=4→48H
{1, 2, 7}, {1, 3, 5}, {1, 4, 6}, {2, 4, 3},
{2, 5, 6}, {3, 6, 7}, {4, 7, 5}}
flat triad/mask bits
{1, **7**, **2**, 3, 5, 4, 6}
{0, 0, 0, 1, 0, 0, 1}

Not Flipped
Triad fpi=29 BC_8 R fp_sm=7→41H
{1, 7, 2}, {1, 3, 6}, {1, 4, 5}, {2, 3, 4
{2, 5, 6}, {3, 5, 7}, {4, 7, 6}}
flat triad/mask bits
{1, 7, 2, 3, 6, 4, 5}
{1, 0, 0, 0, 0, 0, 1}

102 $\overline{\mathrm{t}}{}_{\mathrm{b_m}}^{-2/3}\ \check{\mathrm{R}}$  {BC8, snubH4 24−1, snubH4 16−1, 2Dodecab, ring3, H4ring2} 0apggsscc 011111111_2

Bn{	1	1	0	1	0	0	0	1	}
E8{	$\frac{1}{2}$	$\frac{1}{2}$	$-\frac{1}{2}$	$\frac{1}{2}$	$-\frac{1}{2}$	$-\frac{1}{2}$	$-\frac{1}{2}$	$\frac{1}{2}$	}
Ph{	$\frac{1}{2}$	$\frac{1}{2}$	$-\frac{1}{\sqrt{2}}$	0	$-\frac{1}{2}$	$-\frac{1}{2\sqrt{3}}$	0	$\sqrt{\frac{2}{3}}$	}

Rt{	−1	0	0	−1	−1	−2	−1	−2	}
Wt{	0	0	1	−1	1	0	0	−1	}
Ht	8								

$\bar{\mathrm{I}}$
53

Flipped
Triad fpi=30 BC_8 R fp_sm=6→42H
{1, 2, 7}, {1, 6, 3}, {1, 4, 5}, {2, 3, 5},
{2, 4, 6}, {3, 4, 7}, {5, 7, 6}}
flat triad/mask bits
{1, **7**, **2**, 6, 3, 4, 5}
{0, 1, 0, 0, 0, 0, 1}

Not Flipped
Triad fpi=28 BC_8 R fp_sm=3→49H
{1, 7, 2}, {1, 3, 5}, {1, 4, 6}, {2, 6, 3
{2, 4, 5}, {3, 4, 7}, {5, 7, 6}}
flat triad/mask bits
{1, **2**, **7**, 3, 5, 4, 6}
{1, 0, 0, 1, 0, 0, 1}

107 $\mathrm{u}{}_{\mathrm{g_d}}^{0\to2/3}\ \check{\mathrm{L}}$  {BC8, snubH4 24−4, Idempot, 2Dodecab, ring5, H4ring1} 0apggsscc 001010010_2

Bn{	1	1	0	0	0	1	0	1	}
E8{	$\frac{1}{2}$	$\frac{1}{2}$	$-\frac{1}{2}$	$-\frac{1}{2}$	$-\frac{1}{2}$	$\frac{1}{2}$	$-\frac{1}{2}$	$\frac{1}{2}$	}
Ph{	$\frac{1}{2}$	$\frac{1}{2}$	0	$-\frac{1}{\sqrt{2}}$	$-\frac{1}{2}$	$\frac{1}{2\sqrt{3}}$	$-\frac{1}{\sqrt{2}}$	$\frac{1}{\sqrt{6}}$	}

Rt{	−1	0	0	−1	−2	−3	−1	−2	}
Wt{	0	0	1	0	0	−1	1	0	}
Ht	10								

$\overline{\mathrm{Gd}}$
64

Flipped
Triad fpi=12 BC_8 R fp_sm=4→04H
{1, 2, 4}, {1, 3, 7}, {1, 6, 5}, {2, 3, 6},
{2, 5, 7}, {3, 4, 5}, {4, 6, 7}}
flat triad/mask bits
{1, **4**, **2**, 3, 7, 6, 5}
{0, 0, 1, 0, 0, 0, 0}

Not Flipped
Triad fpi=11 BC_8 R fp_sm=1→07H
{1, 4, 2}, {1, 7, 3}, {1, 6, 5}, {2, 3, 5
{2, 6, 7}, {3, 4, 6}, {4, 5, 7}}
flat triad/mask bits
{1, 4, 2, 7, 3, 6, 5}
{1, 1, 1, 0, 0, 0, 0}

108 $\mathrm{u}{}_{\mathrm{r_d}}^{0\to2/3}\ \check{\mathrm{L}}$  {BC8, E7, E6(27), H4cell24, H4cell8, Hamming, 2Dodecab, ring4, H4ring4} 0apggsscc 001010001_2

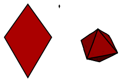
Bn{	1	1	0	0	0	0	1	1	}
E8{	$\frac{1}{2}$	$\frac{1}{2}$	$-\frac{1}{2}$	$-\frac{1}{2}$	$-\frac{1}{2}$	$-\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	}
Ph{	$\frac{1}{2}$	$\frac{1}{2}$	0	$-\frac{1}{\sqrt{2}}$	$-\frac{1}{2}$	$\frac{1}{2\sqrt{3}}$	$\frac{1}{\sqrt{2}}$	$\frac{1}{\sqrt{6}}$	}

Rt{	−1	0	0	−1	−2	−3	−2	−2	}
Wt{	0	0	1	0	0	0	−1	0	}
Ht	11								

$\overline{\mathrm{Yb}}$
70

Flipped
Triad fpi=10 BC_8 R fp_sm=5→0FH
{1, 4, 2}, {1, 6, 3}, {1, 7, 5}, {2, 7, 3},
{2, 5, 6}, {3, 4, 5}, {4, 6, 7}}
flat triad/mask bits
{1, **2**, **4**, 6, 3, 7, 5}
{1, 1, 1, 1, 0, 0, 0}

Not Flipped
Triad fpi=8 BC_8 R fp_sm=2→06H
{1, 2, 4}, {1, 5, 3}, {1, 7, 6}, {2, 3, 7
{2, 5, 6}, {3, 4, 6}, {4, 5, 7}}
flat triad/mask bits
{1, 2, 4, 5, 3, 7, 6}
{0, 1, 1, 0, 0, 0, 0}

110 $\overline{\mathrm{t}}{}_{\mathrm{r_d}}^{0\to-2/3}\ \check{\mathrm{L}}$  {BC8, E7, E6(27), 6Cube, C4, H4cell24, H4cell8, 2Dodecab, ring5, H4ring3} 0apggsscc 011110001_2

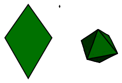
Bn{	1	0	1	1	0	1	0	0	}
E8{	$\frac{1}{2}$	$-\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$-\frac{1}{2}$	$\frac{1}{2}$	$-\frac{1}{2}$	$-\frac{1}{2}$	}
Ph{	$\frac{1}{2}$	$-\frac{1}{2}$	0	$\frac{1}{\sqrt{2}}$	$-\frac{1}{2}$	$-\frac{1}{2\sqrt{3}}$	$-\frac{1}{\sqrt{2}}$	$-\frac{1}{\sqrt{6}}$	}

Rt{	1	1	1	2	3	3	2	2	}
Wt{	0	1	−1	0	1	−1	1	0	}
Ht	15								

Th
90

Flipped
Triad fpi=25 BC_8 R fp_sm=5→70H
{1, 2, 7}, {1, 3, 4}, {1, 5, 6}, {2, 3, 5},
{2, 6, 4}, {3, 7, 6}, {4, 7, 5}}
flat triad/mask bits
{1, **7**, **2**, 3, 4, 5, 6}
{0, 0, 0, 0, 1, 1, 1}

Not Flipped
Triad fpi=26 BC_8 R fp_sm=8→73H
{1, 7, 2}, {1, 4, 3}, {1, 5, 6}, {2, 3, 6
{2, 5, 4}, {3, 7, 5}, {4, 7, 6}}
flat triad/mask bits
{1, 7, 2, 4, 3, 5, 6}
{1, 1, 0, 0, 1, 1, 1}

111 $\overline{\mathrm{t}}{}_{\mathrm{g_d}}^{0\to-2/3}\ \check{\mathrm{L}}$  {BC8, 6Cube, snubH4 24−3, snubH4 16−3, 2Dodecab, ring3, H4ring3} 0apggsscc 011110010_2

Bn{	1	0	1	1	0	0	1	0	}
E8{	$\frac{1}{2}$	$-\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$-\frac{1}{2}$	$-\frac{1}{2}$	$\frac{1}{2}$	$-\frac{1}{2}$	}
Ph{	$\frac{1}{2}$	$-\frac{1}{2}$	0	$\frac{1}{\sqrt{2}}$	$-\frac{1}{2}$	$-\frac{1}{2\sqrt{3}}$	$\frac{1}{\sqrt{2}}$	$-\frac{1}{\sqrt{6}}$	}

Rt{	1	1	1	2	3	3	1	2	}
Wt{	0	1	−1	0	1	0	−1	0	}
Ht	14								

Fr
87

Flipped
Triad fpi=27 BC_8 R fp_sm=4→7BH
{1, 7, 2}, {1, 5, 3}, {1, 4, 6}, {2, 4, 3},
{2, 6, 5}, {3, 7, 6}, {4, 7, 5}}
flat triad/mask bits
{1, **2**, **7**, 5, 3, 4, 6}
{1, 1, 0, 1, 1, 1, 1}

Not Flipped
Triad fpi=29 BC_8 R fp_sm=7→72H
{1, 2, 7}, {1, 6, 3}, {1, 4, 5}, {2, 3, 4
{2, 6, 5}, {3, 7, 5}, {4, 7, 6}}
flat triad/mask bits
{1, 2, 7, 6, 3, 4, 5}
{0, 1, 0, 0, 1, 1, 1}

116 $\mathrm{u}{}_{\mathrm{b_m}}^{2/3}\ \check{\mathrm{R}}$  {BC8, 6Cube, snubH4 24−3, 2Dodecab, ring2, H4ring3} 0apggsscc 001011111_2

Bn{	1	0	1	0	0	1	1	0	}
E8{	$\frac{1}{2}$	$-\frac{1}{2}$	$\frac{1}{2}$	$-\frac{1}{2}$	$-\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$-\frac{1}{2}$	}
Ph{	$\frac{1}{2}$	$-\frac{1}{2}$	$\frac{1}{\sqrt{2}}$	0	$-\frac{1}{2}$	$\frac{1}{2\sqrt{3}}$	0	$-\sqrt{\frac{2}{3}}$	}

Rt{	1	1	1	2	2	2	1	2	}
Wt{	0	1	−1	1	0	−1	0	1	}
Ht	12								

Pt
78

Flipped
Triad fpi=13 BC_8 R fp_sm=6→3DH
{1, 5, 2}, {1, 3, 4}, {1, 7, 6}, {2, 6, 3},
{2, 7, 4}, {3, 7, 5}, {4, 5, 6}}
flat triad/mask bits
{1, **2**, **5**, 3, 4, 7, 6}
{1, 0, 1, 1, 1, 1, 0}

Not Flipped
Triad fpi=14 BC_8 R fp_sm=7→3EH
{1, 2, 5}, {1, 4, 3}, {1, 7, 6}, {2, 7, 3
{2, 6, 4}, {3, 6, 5}, {4, 5, 7}}
flat triad/mask bits
{1, 2, 5, 4, 3, 7, 6}
{0, 1, 1, 1, 1, 1, 0}

117 $\mathrm{u}{}_{\mathrm{g_m}}^{0\to2/3}\ \check{\mathrm{R}}$  {BC8, H4cell24, H4cell8, Hamming, 2Dodecab, ring3, H4ring1} 0apggsscc 001011110_2

Bn{	1	0	1	0	0	1	0	1	}
E8{	$\frac{1}{2}$	$-\frac{1}{2}$	$\frac{1}{2}$	$-\frac{1}{2}$	$-\frac{1}{2}$	$\frac{1}{2}$	$-\frac{1}{2}$	$\frac{1}{2}$	}
Ph{	$\frac{1}{2}$	$-\frac{1}{2}$	$\frac{1}{\sqrt{2}}$	0	$-\frac{1}{2}$	$\frac{1}{2\sqrt{3}}$	$-\frac{1}{\sqrt{2}}$	$\frac{1}{\sqrt{6}}$	}

Rt{	−1	0	−1	−1	−2	−3	−1	−2	}
Wt{	0	1	−1	1	0	−1	1	0	}
Ht	11								

$\overline{\mathrm{Lu}}$
71

Flipped
Triad fpi=12 BC_8 R fp_sm=4→37H
{1, 4, 2}, {1, 7, 3}, {1, 6, 5}, {2, 3, 6},
{2, 7, 5}, {3, 5, 4}, {4, 6, 7}}
flat triad/mask bits
{1, **2**, **4**, 7, 3, 6, 5}
{1, 1, 1, 0, 1, 1, 0}

Not Flipped
Triad fpi=11 BC_8 R fp_sm=1→34H
{1, 2, 4}, {1, 3, 7}, {1, 6, 5}, {2, 3, 5
{2, 7, 6}, {3, 6, 4}, {4, 5, 7}}
flat triad/mask bits
{1, 2, 4, 3, 7, 6, 5}
{0, 0, 1, 0, 1, 1, 0}

122 $\mathrm{d}{}_{\mathrm{m_m}}^{-1/3}\ \check{\mathrm{R}}$  {BC8, 6Cube, H4cell24, H4cell8, Hamming, Idempot, 2Dodecab, ring3, H4ring1} 0apggsscc 000011111_2

Bn{	1	0	0	1	0	1	1	0	}
E8{	$\frac{1}{2}$	$-\frac{1}{2}$	$-\frac{1}{2}$	$\frac{1}{2}$	$-\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$-\frac{1}{2}$	}
Ph{	$\frac{1}{2}$	$-\frac{1}{2}$	$-\frac{1}{\sqrt{2}}$	0	$-\frac{1}{2}$	$\frac{1}{2\sqrt{3}}$	0	$-\sqrt{\frac{2}{3}}$	}

Rt{	1	1	1	1	2	2	1	2	}
Wt{	0	1	0	−1	1	−1	0	1	}
Ht	11								

Ta
73

Flipped
Triad fpi=14 BC_8 L fp_sm=7→39H
{1, 5, 2}, {1, 3, 4}, {1, 6, 7}, {2, 7, 3},
{2, 6, 4}, {3, 6, 5}, {4, 5, 7}}
flat triad/mask bits
{1, **2**, **5**, 3, 4, 6, 7}
{1, 0, 0, 1, 1, 1, 0}

Not Flipped
Triad fpi=13 BC_8 L fp_sm=6→3AH
{1, 2, 5}, {1, 4, 3}, {1, 6, 7}, {2, 6, 3
{2, 7, 4}, {3, 7, 5}, {4, 5, 6}}
flat triad/mask bits
{1, 2, 5, 4, 3, 6, 7}
{0, 1, 0, 1, 1, 1, 0}

124 $\mathrm{d}{}_{\mathrm{o_m}}^{-\to-1/3}\ \check{\mathrm{R}}$  {BC8, E7, E6(27), snubH4 24−1, 2Dodecab, ring2, H4ring2} 0apggsscc 000011101_2

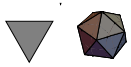
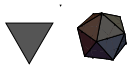
Bn{	1	0	0	1	0	0	1	1	}
E8{	$\frac{1}{2}$	$-\frac{1}{2}$	$-\frac{1}{2}$	$\frac{1}{2}$	$-\frac{1}{2}$	$-\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	}
Ph{	$\frac{1}{2}$	$-\frac{1}{2}$	$-\frac{1}{\sqrt{2}}$	0	$-\frac{1}{2}$	$\frac{1}{2\sqrt{3}}$	$\frac{1}{\sqrt{2}}$	$\frac{1}{\sqrt{6}}$	}

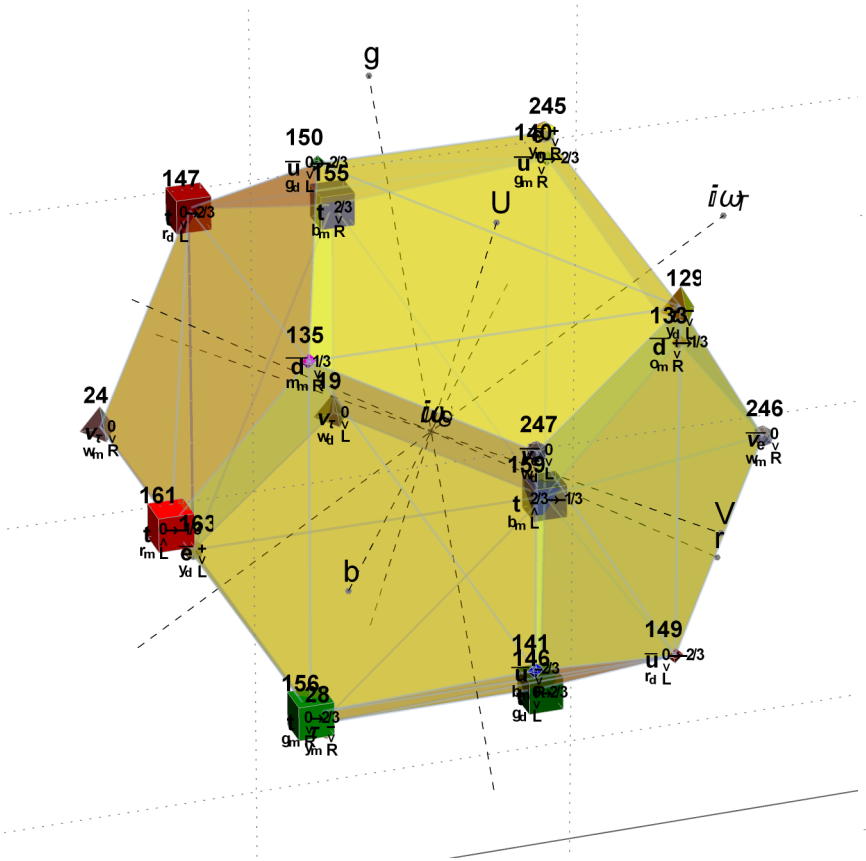
Rt{	−1	0	−1	−2	−2	−3	−2	−2	}
Wt{	0	1	0	−1	1	0	−1	0	}
Ht	13								

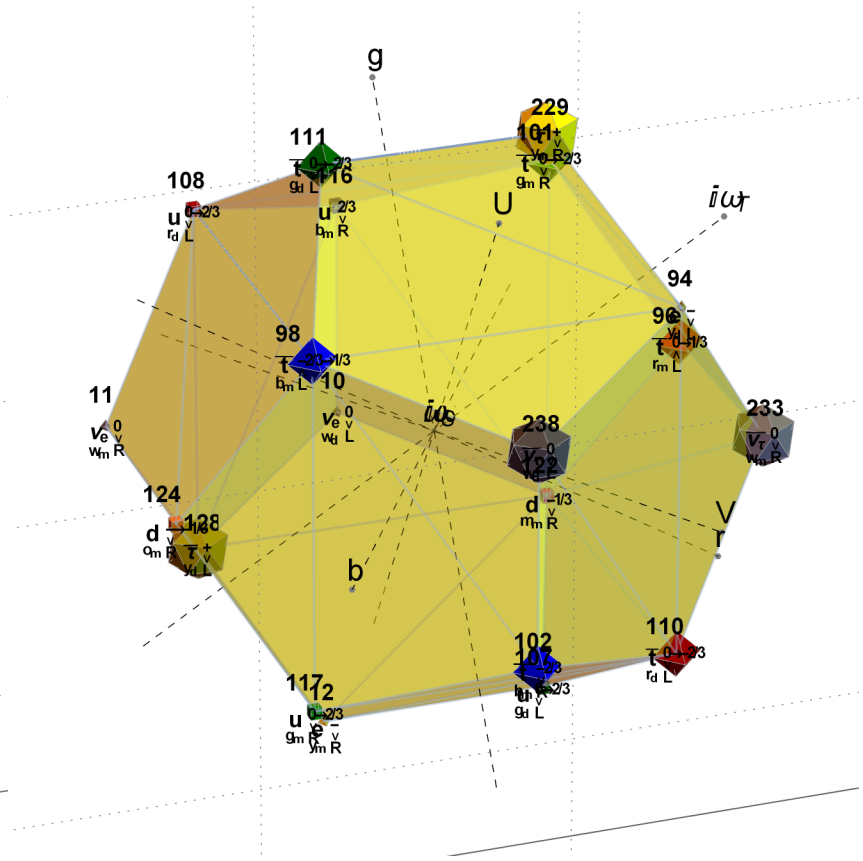
$\overline{\mathrm{Hg}}$
80

Flipped
Triad fpi=8 BC_8 L fp_sm=2→32H
{1, 2, 4}, {1, 5, 3}, {1, 6, 7}, {2, 3, 7},
{2, 6, 5}, {3, 6, 4}, {4, 5, 7}}
flat triad/mask bits
{1, **4**, **2**, 5, 3, 6, 7}

Not Flipped
Triad fpi=10 BC_8 L fp_sm=5→3BH
{1, 4, 2}, {1, 6, 3}, {1, 5, 7}, {2, 7, 3
{2, 6, 5}, {3, 5, 4}, {4, 6, 7}}
flat triad/mask bits
{1, 4, 2, 6, 3, 5, 7}

128	$\overline{\tau}^{+}_{\vee}$ y_d L		{BC8, E7, E6, H4cell24, H4cell8, 2Dodecab, ring5, H4ring3}	0_{apggsscc} 010110000_2	Bn{	1	0	0	0	0	1	1	1 }	Rt{	−1	0	−1	−2	−3	−4	−2	−2 }	$\overline{\text{Ac}}$ 89	{0, 1, 0, 0, 1, 1, 0} Flipped Triad fpi=23 BC_8 L fp_sm=2→7EH {{1, 2, 6}, {1, 7, 3}, {1, 5, 4}, {2, 4, 3}, {2, 7, 5}, {3, 6, 5}, {4, 7, 6}} flat triad/mask bits {1, 6, 2, 7, 3, 5, 4} {0, 1, 1, 1, 1, 1, 1}	{1, 1, 0, 1, 1, 1, 0} Not Flipped Triad fpi=24 BC_8 L fp_sm=3→7DH {{1, 6, 2}, {1, 3, 7}, {1, 5, 4}, {2, 5, 3}, {2, 7, 4}, {3, 6, 4}, {5, 7, 6}} flat triad/mask bits {1, 6, 2, 3, 7, 5, 4} {1, 0, 1, 1, 1, 1, 1}
					E8{	$\frac{1}{2}$	$-\frac{1}{2}$	$-\frac{1}{2}$	$-\frac{1}{2}$	$-\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$ }	Wt{	0	1	0	0	0	−1	0	1 }				
					Ph{	$\frac{1}{2}$	$-\frac{1}{2}$	0	$-\frac{1}{\sqrt{2}}$	$-\frac{1}{2}$	$\frac{\sqrt{3}}{2}$	0	0 }	Ht	15											
229	$\overline{\tau}^{+}_{\vee}$ y_m R		{BC8, E7, E6, snubH4 24−2, snubH4 16−2, 2Dodecab, ring3, H4ring3}	0_{apggsscc} 010111100_2	Bn{	1	1	1	0	0	1	1	1 }	Rt{	−1	0	0	0	−1	−2	−1	−1 }	$\overline{\text{Nb}}$ 41	Flipped Triad fpi=23 BC_8 L fp_sm=2→4DH {{1, 6, 2}, {1, 3, 7}, {1, 5, 4}, {2, 4, 3}, {2, 5, 7}, {3, 5, 6}, {4, 7, 6}} flat triad/mask bits {1, 2, 6, 3, 7, 5, 4} {1, 0, 1, 1, 0, 0, 1}	Not Flipped Triad fpi=24 BC_8 L fp_sm=3→4EH {{1, 6, 2}, {1, 3, 7}, {1, 5, 4}, {2, 5, 3}, {2, 4, 7}, {3, 4, 6}, {5, 7, 6}} flat triad/mask bits {1, 2, 6, 7, 3, 5, 4} {0, 1, 1, 1, 0, 0, 1}
					E8{	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$-\frac{1}{2}$	$-\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$ }	Wt{	−1	0	0	1	0	−1	0	1 }				
					Ph{	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{\sqrt{2}}$	0	$-\frac{1}{2}$	$\frac{\sqrt{3}}{2}$	0	0 }	Ht	6											
233	$\overline{v_r}^{0}_{\vee}$ w_m R		{BC8, E7, E6, snubH4 24−2, 2Dodecab, ring4, H4ring4}	0_{apggsscc} 011111100_2	Bn{	1	1	0	1	0	1	1	1 }	Rt{	−1	0	0	−1	−1	−2	−1	−1 }	$\overline{\text{Cd}}$ 48	Flipped Triad fpi=24 BC_8 R fp_sm=3→49H {{1, 6, 2}, {1, 3, 7}, {1, 4, 5}, {2, 5, 3}, {2, 4, 7}, {3, 4, 6}, {5, 7, 6}} flat triad/mask bits {1, 2, 6, 3, 7, 4, 5} {1, 0, 0, 1, 0, 0, 1}	Not Flipped Triad fpi=23 BC_8 R fp_sm=2→4AH {{1, 2, 6}, {1, 7, 3}, {1, 4, 5}, {2, 4, 3}, {2, 5, 7}, {3, 5, 6}, {4, 7, 6}} flat triad/mask bits {1, 2, 6, 7, 3, 4, 5} {0, 1, 0, 1, 0, 0, 1}
					E8{	$\frac{1}{2}$	$\frac{1}{2}$	$-\frac{1}{2}$	$\frac{1}{2}$	$-\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$ }	Wt{	−1	0	1	−1	1	−1	0	1 }				
					Ph{	$\frac{1}{2}$	$\frac{1}{2}$	$-\frac{1}{\sqrt{2}}$	0	$-\frac{1}{2}$	$\frac{\sqrt{3}}{2}$	0	0 }	Ht	7											
238	$\overline{v_r}^{0}_{\vee}$ w_d L		{BC8, E7, E6, snubH4 24−2, 2Dodecab, ring2, H4ring3}	0_{apggsscc} 011110000_2	Bn{	1	0	1	1	0	1	1	1 }	Rt{	−1	0	−1	−1	−1	−2	−1	−1 }	$\overline{\text{Cs}}$ 55	Flipped Triad fpi=24 BC_8 R fp_sm=3→7AH {{1, 2, 6}, {1, 7, 3}, {1, 4, 5}, {2, 5, 3}, {2, 7, 4}, {3, 6, 4}, {5, 7, 6}} flat triad/mask bits {1, 6, 2, 7, 3, 4, 5} {0, 1, 0, 1, 1, 1, 1}	Not Flipped Triad fpi=23 BC_8 R fp_sm=2→79H {{1, 2, 6}, {1, 3, 7}, {1, 4, 5}, {2, 4, 3}, {2, 7, 5}, {3, 6, 5}, {4, 7, 6}} flat triad/mask bits {1, 6, 2, 3, 7, 4, 5} {1, 0, 0, 1, 1, 1, 1}
					E8{	$\frac{1}{2}$	$-\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$-\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$ }	Wt{	−1	1	−1	0	1	−1	0	1 }				
					Ph{	$\frac{1}{2}$	$-\frac{1}{2}$	0	$\frac{1}{\sqrt{2}}$	$-\frac{1}{2}$	$\frac{\sqrt{3}}{2}$	0	0 }	Ht	8											





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dispRows@# & /@ e8hulls[[4]] // ColumnForm
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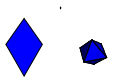
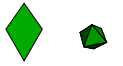
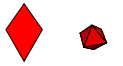
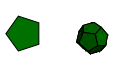
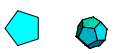
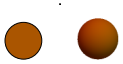
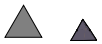
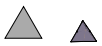
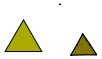
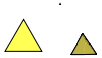
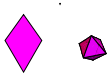
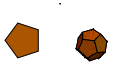
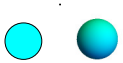
Seq #	Symbol	2D/3D Shape	Groups	Particle Quantum Bits	Binary / E8 / Physics Coordinates	Algebra Root Weight / Height / Rt#=Atomic Element Number -->	Ele #	Octonions
38	$\overline{W}^{\,0}_{\vee}$ b_m R		{D8, E7, E7(56), D7, E6, D6, E5, D5, D4, D4Dual, F4, snubH4Φ 24−3, D3, D2, 3Icosaa, ring3, H4Φring4}	$0apggsscc_{2}$ 011001111	Bn{ 1 1 1 0 0 0 0 0 } E8{ −1 −1 0 0 0 0 0 0 } Ph{ −1 −1 0 0 0 0 0 0 }	Rt{ 0 −1 −2 −2 −2 −2 −1 −1 } Wt{ 1 0 −1 0 0 0 0 0 } Ht 11	$\overline{Tm}$ 69	Flipped Triad fpi=6 D_8 R fp_sm=6→42H {{1, 2, 3}, {1, 7, 4}, {1, 5, 6}, {2, 4, 6}}{{1, 2, 4}, {1, 6, 3}, {1, 5, 7}, {2, 3, 5 {2, 5, 7}, {3, 4, 5}, {3, 7, 6}} {2, 6, 7}, {3, 4, 7}, {4, 6, 5}} flat triad/mask bits {1, 3, 2, 7, 4, 5, 6} {0, 1, 0, 0, 0, 0, 1} Not Flipped Triad fpi=9 D_8 R fp_sm=6→42H flat triad/mask bits {1, 2, 4, 6, 3, 5, 7} {0, 1, 0, 0, 0, 0, 1}
39	$\overline{e_S}\phi^{\,0}_{\wedge}$ r_m L		{D8, E7, E7(56), D7, E6, D6, E5, D5, D4, D4Dual, F4, snubH4Φ 24−1, D3, 3Icosaa, 3Icosad, ring2, H4Φring4}	$0apggsscc_{2}$ 011001001	Bn{ 1 1 0 1 0 0 0 0 } E8{ −1 0 −1 0 0 0 0 0 } Ph{ −1 0 $-\frac{1}{\sqrt{2}}$ $-\frac{1}{\sqrt{2}}$ 0 0 0 0 }	Rt{ 0 −1 −1 −2 −2 −2 −1 −1 } Wt{ 1 −1 1 −1 0 0 0 0 } Ht 10	$\overline{Eu}$ 63	Flipped Triad fpi=1 D_8 R fp_sm=5→5DH {{1, 3, 2}, {1, 4, 5}, {1, 7, 6}, {2, 6, 4}}{{1, 2, 3}, {1, 5, 4}, {1, 7, 6}, {2, 7, 4 {2, 7, 5}, {3, 4, 7}, {3, 6, 5}} {2, 6, 5}, {3, 4, 6}, {3, 7, 5}} flat triad/mask bits {1, 2, 3, 4, 5, 7, 6} {1, 0, 1, 1, 1, 0, 1} Not Flipped Triad fpi=2 D_8 R fp_sm=8→5EH flat triad/mask bits {1, 2, 3, 5, 4, 7, 6} {0, 1, 1, 1, 1, 0, 1}
40	$e_S\phi^{\,0\to1}_{\wedge}$ r_l R		{D8, E7, E7(56), D7, E6, D6, E5, D5, D4, D4Dual, F4, snubH4Φ 24−4, snubH4Φ 16−4, 3Icosaa, ring6, H4Φring4}	$0apggsscc_{2}$ 001000101	Bn{ 1 1 0 0 1 0 0 0 } E8{ −1 0 0 −1 0 0 0 0 } Ph{ −1 0 $\frac{1}{\sqrt{2}}$ $-\frac{1}{\sqrt{2}}$ 0 0 0 0 }	Rt{ 0 −1 −1 −1 −2 −2 −1 −1 } Wt{ 1 −1 0 1 −1 0 0 0 } Ht 9	$\overline{Ce}$ 58	Flipped Triad fpi=2 D_8 R fp_sm=8→12H {{1, 2, 3}, {1, 5, 4}, {1, 6, 7}, {2, 4, 7}}{{1, 3, 2}, {1, 4, 5}, {1, 6, 7}, {2, 4, 6 {2, 6, 5}, {3, 4, 6}, {3, 5, 7}} {2, 7, 5}, {3, 4, 7}, {3, 5, 6}} flat triad/mask bits {1, 3, 2, 5, 4, 6, 7} {0, 1, 0, 0, 1, 0, 0} Not Flipped Triad fpi=1 D_8 R fp_sm=5→11H flat triad/mask bits {1, 3, 2, 4, 5, 6, 7} {1, 0, 0, 0, 1, 0, 0}
42	$\overset{s}{o}_m\overset{\to-1/3}{\vee}$ R		{D8, E7, E7(56), D7, E6(27), D6, snubH4Φ 24−1, 3Icosaa, ring6, H4Φring3}	$0apggsscc_{2}$ 000101101	Bn{ 1 1 0 0 0 0 1 0 } E8{ −1 0 0 0 0 −1 0 0 } Ph{ −1 0 0 0 0 $-\frac{1}{\sqrt{3}}$ $\frac{1}{\sqrt{2}}$ $\frac{1}{\sqrt{6}}$ }	Rt{ 0 −1 −1 −1 −1 −1 −1 −1 } Wt{ 1 −1 0 0 0 1 −1 −1 } Ht 7	$\overline{Pd}$ 46	Flipped Triad fpi=17 D_8 L fp_sm=8→38H {{1, 2, 5}, {1, 3, 7}, {1, 4, 6}, {2, 4, 3}}{{1, 6, 2}, {1, 3, 4}, {1, 5, 7}, {2, 3, 5 {2, 7, 6}, {3, 6, 5}, {4, 5, 7}} {2, 7, 4}, {3, 7, 6}, {4, 5, 6}} flat triad/mask bits {1, 5, 2, 3, 7, 4, 6} {0, 0, 0, 1, 1, 1, 0} Not Flipped Triad fpi=19 D_8 L fp_sm=3→31H flat triad/mask bits {1, 6, 2, 3, 4, 5, 7} {1, 0, 0, 0, 1, 1, 0}
43	$\overset{s}{c}_m\overset{\to-1/3}{\vee}$ R		{D8, E7(56), D7, snubH4Φ 24−4, snubH4Φ 8−4, 3Icosaa, ring2, H4Φring4}	$0apggsscc_{2}$ 000101110	Bn{ 1 1 0 0 0 0 0 1 } E8{ −1 0 0 0 0 0 −1 0 } Ph{ −1 0 0 0 0 $-\frac{1}{\sqrt{3}}$ $-\frac{1}{\sqrt{2}}$ $\frac{1}{\sqrt{6}}$ }	Rt{ 0 −1 −1 −1 −1 −1 0 −1 } Wt{ 1 −1 0 0 0 0 1 −1 } Ht 6	$\overline{Y}$ 39	Flipped Triad fpi=18 D_8 L fp_sm=6→3AH {{1, 2, 5}, {1, 7, 3}, {1, 4, 6}, {2, 6, 3}}{{1, 6, 2}, {1, 4, 3}, {1, 5, 7}, {2, 3, 7 {2, 7, 4}, {3, 5, 4}, {5, 6, 7}} {2, 5, 4}, {3, 6, 5}, {4, 6, 7}} flat triad/mask bits {1, 5, 2, 7, 3, 4, 6} {0, 1, 0, 1, 1, 1, 0} Not Flipped Triad fpi=20 D_8 L fp_sm=1→33H flat triad/mask bits {1, 6, 2, 4, 3, 5, 7} {1, 1, 0, 0, 1, 1, 0}
44	$\overset{s}{m}_m\overset{-1/3}{\vee}$ R		{D8, E7(56), snubH4Φ 24−3, 3Icosaa, 3Icosad, ring2, H4Φring3}	$0apggsscc_{2}$ 000101111	Bn{ 1 0 1 1 0 0 0 0 } E8{ −1 0 0 0 0 0 0 −1 } Ph{ −1 0 0 0 0 $-\frac{1}{\sqrt{3}}$ 0 $-\sqrt{\frac{2}{3}}$ }	Rt{ 2 0 1 2 3 4 2 3 } Wt{ 1 −1 0 0 0 0 0 0 } Ht 17	Fm 100	Flipped Triad fpi=22 D_8 L fp_sm=6→3AH {{1, 2, 6}, {1, 5, 3}, {1, 4, 7}, {2, 7, 3}}{{1, 2, 6}, {1, 5, 3}, {1, 4, 7}, {2, 4, 3 {2, 5, 4}, {3, 6, 4}, {5, 6, 7}} {2, 7, 5}, {3, 7, 6}, {4, 5, 6}} flat triad/mask bits {1, 6, 2, 5, 3, 4, 7} {0, 1, 0, 1, 1, 1, 0} Not Flipped Triad fpi=21 D_8 L fp_sm=6→3AH flat triad/mask bits {1, 2, 6, 5, 3, 4, 7} {0, 1, 0, 1, 1, 1, 0}
45	$\overline{\overset{c}{b}_m}\overset{-2/3\to1/3}{\wedge}$ L		{D8, snubH4Φ 24−2, 3Icosaa, ring2, H4Φring3, a7}	$0apggsscc_{2}$ 011101011	Bn{ 1 0 1 0 1 0 0 0 } E8{ −1 0 0 0 0 0 0 1 } Ph{ −1 0 0 0 0 $\frac{1}{\sqrt{3}}$ 0 $\sqrt{\frac{2}{3}}$ }	Rt{ −2 −2 −3 −4 −5 −6 −3 −4 } Wt{ 0 −1 0 0 0 0 0 0 } Ht 29	$\overline{Ubn}$ 120	Flipped Triad fpi=22 D_8 R fp_sm=6→5CH {{1, 2, 6}, {1, 3, 5}, {1, 7, 4}, {2, 7, 3}}{{1, 2, 6}, {1, 3, 5}, {1, 7, 4}, {2, 4, 3 {2, 5, 4}, {3, 4, 6}, {5, 7, 6}} {2, 7, 5}, {3, 6, 7}, {4, 6, 5}} flat triad/mask bits {1, 6, 2, 3, 5, 7, 4} {0, 0, 1, 1, 1, 0, 1} Not Flipped Triad fpi=21 D_8 R fp_sm=6→5CH flat triad/mask bits {1, 2, 6, 3, 5, 7, 4} {0, 0, 1, 1, 1, 0, 1}
46	$\overline{\overset{c}{\delta m}}\overset{0\to1/3}{\wedge}$ L		{D8, D7, snubH4Φ 24−2, snubH4Φ 16−2, 3Icosaa, ring7, H4Φring2, a7, a6}	$0apggsscc_{2}$ 011101010	Bn{ 1 0 1 0 0 1 0 0 } E8{ −1 0 0 0 0 0 1 0 } Ph{ −1 0 0 0 0 $\frac{1}{\sqrt{3}}$ $\frac{1}{\sqrt{2}}$ $-\frac{1}{\sqrt{6}}$ }	Rt{ 0 −1 −1 −1 −1 −1 −1 0 } Wt{ 0 −1 0 0 0 0 −1 1 } Ht 6	$\overline{Zr}$ 40	Flipped Triad fpi=18 D_8 R fp_sm=6→5CH {{1, 2, 5}, {1, 3, 7}, {1, 6, 4}, {2, 6, 3}}{{1, 6, 2}, {1, 3, 4}, {1, 7, 5}, {2, 3, 7 {2, 7, 4}, {3, 4, 5}, {5, 7, 6}} {2, 5, 4}, {3, 5, 6}, {4, 7, 6}} flat triad/mask bits {1, 5, 2, 3, 7, 6, 4} {0, 0, 1, 1, 1, 0, 1} Not Flipped Triad fpi=20 D_8 R fp_sm=1→55H flat triad/mask bits {1, 6, 2, 3, 4, 7, 5} {1, 0, 1, 0, 1, 0, 1}
47	$\overline{\overset{c}{r}_m}\overset{0\to1/3}{\wedge}$ L		{D8, E7, D7, E6(27), D6, snubH4Φ 24−2, 3Icosaa, ring3, H4Φring4, a7, a6, a5}	$0apggsscc_{2}$ 011101001	Bn{ 1 0 1 0 0 0 1 0 } E8{ −1 0 0 0 0 1 0 0 } Ph{ −1 0 0 0 0 $\frac{1}{\sqrt{3}}$ $-\frac{1}{\sqrt{2}}$ $-\frac{1}{\sqrt{6}}$ }	Rt{ 0 −1 −1 −1 −1 −1 0 0 } Wt{ 0 −1 0 0 0 −1 1 1 } Ht 5	$\overline{Se}$ 34	Flipped Triad fpi=17 D_8 R fp_sm=8→5EH {{1, 2, 5}, {1, 7, 3}, {1, 6, 4}, {2, 4, 3}}{{1, 6, 2}, {1, 4, 3}, {1, 7, 5}, {2, 3, 5 {2, 7, 6}, {3, 5, 6}, {4, 7, 5}} {2, 4, 7}, {3, 6, 7}, {4, 6, 5}} flat triad/mask bits {1, 5, 2, 7, 3, 6, 4} {0, 1, 1, 1, 1, 0, 1} Not Flipped Triad fpi=19 D_8 R fp_sm=3→57H flat triad/mask bits {1, 6, 2, 4, 3, 7, 5} {1, 1, 1, 0, 1, 0, 1}
49	$\overline{\overline{c_T}\phi}^{\,0\to-1}_{\vee}$ g_d L		{D8, E7, D7, E6, D6, E5, D5, E4, D4, D4Dual, F4, snubH4Φ 24−1, snubH4Φ 16−1, 3Icosaa, 3Icosad, ring6, H4Φring4, a7, a6, a5, a4, a3}	$0apggsscc_{2}$ 011000010	Bn{ 1 0 0 1 1 0 0 0 } E8{ −1 0 0 1 0 0 0 0 } Ph{ −1 0 $-\frac{1}{\sqrt{2}}$ $\frac{1}{\sqrt{2}}$ 0 0 0 0 }	Rt{ 0 −1 −1 −1 0 0 0 0 } Wt{ 0 −1 0 −1 1 0 0 0 } Ht 3	$\overline{Sc}$ 21	Flipped Triad fpi=3 D_8 R fp_sm=4→7BH {{1, 3, 2}, {1, 6, 4}, {1, 5, 7}, {2, 5, 4}}{{1, 2, 3}, {1, 7, 4}, {1, 5, 6}, {2, 4, 5 {2, 7, 6}, {3, 7, 4}, {3, 6, 5}} {2, 7, 6}, {3, 6, 4}, {3, 7, 5}} flat triad/mask bits {1, 2, 3, 6, 4, 5, 7} {1, 1, 0, 1, 1, 1, 1} Not Flipped Triad fpi=5 D_8 R fp_sm=7→72H flat triad/mask bits {1, 2, 3, 7, 4, 5, 6} {0, 1, 0, 0, 1, 1, 1}
50	$e_T\phi^{\,0}_{\wedge}$ b_l R		{D8, E7, D7, E6, D6, E5, D5, E4, D4, D4Dual, F4, snubH4Φ 24−3, snubH4Φ 16−3, D3, 3Icosaa, ring7, H4Φring2, a7, a6, a5, a4, a3}	$0apggsscc_{2}$ 001000111	Bn{ 1 0 0 1 0 1 0 0 } E8{ −1 0 1 0 0 0 0 0 } Ph{ −1 0 $\frac{1}{\sqrt{2}}$ $\frac{1}{\sqrt{2}}$ 0 0 0 0 }	Rt{ 0 −1 −1 0 0 0 0 0 } Wt{ 0 −1 −1 1 0 0 0 0 } Ht 2	$\overline{Si}$ 14	Flipped Triad fpi=9 D_8 R fp_sm=6→10H {{1, 2, 4}, {1, 3, 6}, {1, 5, 7}, {2, 3, 5}}{{1, 2, 3}, {1, 4, 7}, {1, 5, 6}, {2, 4, 6 {2, 7, 6}, {3, 4, 7}, {4, 5, 6}} {2, 7, 5}, {3, 4, 5}, {3, 6, 7}} flat triad/mask bits {1, 4, 2, 3, 6, 5, 7} {0, 0, 0, 0, 1, 0, 0} Not Flipped Triad fpi=6 D_8 R fp_sm=6→10H flat triad/mask bits {1, 2, 3, 4, 7, 5, 6} {0, 0, 0, 0, 1, 0, 0}
			{D8, E7, D7, E6, D6, E5, D5, E4, D4, D4Dual, F4,					Flipped Triad fpi=5 D_8 R fp_sm=7→3EH {{1, 2, 3}, {1, 7, 4}, {1, 6, 5}, {2, 5, 4}}{{1, 2, 3}, {1, 6, 4}, {1, 7, 5}, {2, 4, 5 Not Flipped Triad fpi=3 D_8 R fp_sm=4→37H

Seq ♯	Symbol	2D/3D Shape	Groups	Particle Quantum Bits	Binary / E8 / Physics Coordinates	Algebra Root Weight / Height / Rt♯=Atomic Element Number −−>	Ele ♯	Octonions
51	ω_R 0 ∨ gm R		snubH4Φ 24−4, snubH4Φ 8−4, D3, D2, 3Icosaa, ring6, H4Φring3, a7, a6, a5, a4, a3}	0_{apggsscc} 001001110_2	Bn{ 1 0 0 1 0 0 1 0 } E8{ −1 1 0 0 0 0 0 0 } Ph{ −1 1 0 0 0 0 0 0 }	Rt{ 0 −1 0 0 0 0 0 0 } Wt{ 0 −2 1 0 0 0 0 0 } Ht 1	N 7	{{1, 2, 3}, {1, 7, 4}, {1, 6, 5}, {2, 5, 4}}, {{1, 3, 2}, {1, 6, 4}, {1, 7, 5}, {2, 4, 5}, {2, 7, 6}, {3, 6, 4}, {3, 5, 7}} / {{2, 7, 6}, {3, 7, 4}, {3, 5, 6}} flat triad/mask bits {1, 3, 2, 7, 4, 6, 5} {0, 1, 1, 1, 1, 1, 0} / flat triad/mask bits {1, 3, 2, 6, 4, 7, 5} {1, 1, 1, 0, 1, 1, 0}
54	$\overline{\mu}$ + → 0 ∧ ym L		{D8, E7, E7(56), D7, E6, D6, D5, snubH4 24−1, snubH4 16−1, 3Icosab, 3Icosad, ring3, H4ring3}	0_{apggsscc} 010101000_2	Bn{ 1 0 0 0 1 0 1 0 } E8{ 0 −1 0 0 −1 0 0 0 } Ph{ 0 −1 0 0 −1 0 0 0 }	Rt{ 0 0 −1 −1 −1 −2 −1 −1 } Wt{ 1 1 −1 0 1 −1 0 0 } Ht 7	Rh 45	Flipped Triad fpi=15 D_8 L fp_sm=3→50H {{1, 2, 5}, {1, 3, 6}, {1, 4, 7}, {2, 3, 4}}, {{1, 2, 5}, {1, 3, 6}, {1, 4, 7}, {2, 3, 7}, {2, 7, 6}, {3, 5, 7}, {4, 6, 5}} / {{2, 6, 4}, {3, 4, 5}, {5, 7, 6}} flat triad/mask bits {1, 5, 2, 3, 6, 4, 7} {0, 0, 0, 0, 1, 0, 1} / Not Flipped Triad fpi=16 D_8 L fp_sm=3→50H flat triad/mask bits {1, 2, 5, 3, 6, 4, 7} {0, 0, 0, 0, 1, 0, 1}
65	$\overline{\mu}$ + → 0 ∧ y_1 R		{D8, E7, E7(56), D7, E6, D6, D5, snubH4 24−4, 3Icosab, ring4, H4ring2}	0_{apggsscc} 010100100_2	Bn{ 0 1 0 1 0 1 0 0 } E8{ 0 0 −1 0 −1 0 0 0 } Ph{ 0 0 $-\frac{1}{\sqrt{2}}$ $-\frac{1}{\sqrt{2}}$ −1 0 0 0 }	Rt{ 0 0 0 −1 −1 −2 −1 −1 } Wt{ 1 0 1 −1 1 −1 0 0 } Ht 6	Rb 37	Flipped Triad fpi=15 D_8 L fp_sm=3→63H {{1, 5, 2}, {1, 6, 3}, {1, 4, 7}, {2, 3, 4}}, {{1, 5, 2}, {1, 6, 3}, {1, 4, 7}, {2, 3, 7}, {2, 6, 7}, {3, 7, 5}, {4, 6, 5}} / {{2, 4, 6}, {3, 5, 4}, {5, 7, 6}} flat triad/mask bits {1, 2, 5, 6, 3, 4, 7} {1, 1, 0, 0, 0, 1, 1} / Not Flipped Triad fpi=16 D_8 L fp_sm=3→63H flat triad/mask bits {1, 5, 2, 6, 3, 4, 7} {1, 1, 0, 0, 0, 1, 1}
74	$\overline{\mu}$ + ∨ y_d L		{D8, E7, E7(56), D7, E6, D6, D5, snubH4 24−3, snubH4 16−3, 3Icosab, ring5, H4ring4}	0_{apggsscc} 010100000_2	Bn{ 0 0 1 1 1 0 0 0 } E8{ 0 0 0 −1 −1 0 0 0 } Ph{ 0 0 $\frac{1}{\sqrt{2}}$ $-\frac{1}{\sqrt{2}}$ −1 0 0 0 }	Rt{ 0 0 0 0 −1 −2 −1 −1 } Wt{ 1 0 0 1 0 −1 0 0 } Ht 5	Zn 30	Flipped Triad fpi=15 D_8 L fp_sm=3→7DH {{1, 5, 2}, {1, 3, 6}, {1, 7, 4}, {2, 4, 3}}, {{1, 5, 2}, {1, 3, 6}, {1, 7, 4}, {2, 7, 3}, {2, 7, 6}, {3, 7, 5}, {4, 6, 5}} / {{2, 6, 4}, {3, 5, 4}, {5, 7, 6}} flat triad/mask bits {1, 2, 5, 3, 6, 7, 4} {1, 0, 1, 1, 1, 1, 1} / Not Flipped Triad fpi=16 D_8 L fp_sm=3→7DH flat triad/mask bits {1, 5, 2, 3, 6, 7, 4} {1, 0, 1, 1, 1, 1, 1}
82	$\overline{\Phi x_1}$ 0 → −1/3 ∧ o_m L		{D8, E7, E7(56), D7, E6(27), D6, F4, snubH4 24−3, 3Icosab, ring4, H4ring2}	0_{apggsscc} 010001001_2	Bn{ 0 0 1 0 0 1 0 1 } E8{ 0 0 0 0 −1 −1 0 0 } Ph{ 0 0 0 0 −1 $-\frac{1}{\sqrt{3}}$ $\frac{1}{\sqrt{2}}$ $\frac{1}{\sqrt{6}}$ }	Rt{ 0 0 0 0 0 −1 −1 −1 } Wt{ 1 0 0 0 1 0 −1 −1 } Ht 3	S 16	Flipped Triad fpi=2 D_8 L fp_sm=8→59H {{1, 3, 2}, {1, 4, 5}, {1, 6, 7}, {2, 7, 4}}, {{1, 2, 3}, {1, 5, 4}, {1, 6, 7}, {2, 6, 4}, {2, 6, 5}, {3, 4, 6}, {3, 7, 5}} / {{2, 7, 5}, {3, 4, 7}, {3, 6, 5}} flat triad/mask bits {1, 2, 3, 4, 5, 6, 7} {1, 0, 0, 1, 1, 0, 1} / Not Flipped Triad fpi=1 D_8 L fp_sm=5→5AH flat triad/mask bits {1, 2, 3, 5, 4, 6, 7} {0, 1, 0, 1, 1, 0, 1}
83	$\overline{\Phi x_2}$ 0 → −1/3 ∧ c_m L		{D8, E7(56), D7, F4, snubH4 24−1, 3Icosab, 3Icosad, ring4, H4ring2}	0_{apggsscc} 010001010_2	Bn{ 0 0 1 0 0 0 1 1 } E8{ 0 0 0 0 −1 0 −1 0 } Ph{ 0 0 0 0 −1 $-\frac{1}{\sqrt{3}}$ $-\frac{1}{\sqrt{2}}$ $\frac{1}{\sqrt{6}}$ }	Rt{ 0 0 0 0 0 −1 0 −1 } Wt{ 1 0 0 0 1 −1 1 −1 } Ht 2	F 9	Flipped Triad fpi=5 D_8 L fp_sm=7→58H {{1, 2, 3}, {1, 4, 7}, {1, 5, 6}, {2, 5, 4}}, {{1, 3, 2}, {1, 4, 6}, {1, 5, 7}, {2, 4, 5}, {2, 7, 6}, {3, 4, 6}, {3, 7, 5}} / {{2, 7, 6}, {3, 4, 7}, {3, 6, 5}} flat triad/mask bits {1, 3, 2, 4, 7, 5, 6} {0, 0, 0, 1, 1, 0, 1} / Not Flipped Triad fpi=3 D_8 L fp_sm=4→51H flat triad/mask bits {1, 3, 2, 4, 6, 5, 7} {1, 0, 0, 0, 1, 0, 1}
84	$\overline{\Phi x_3}$ 0 → −1/3 ∧ m_m L		{D8, E7(56), F4, snubH4 24−4, 3Icosab, ring1, H4ring1}	0_{apggsscc} 010001011_2	Bn{ 0 0 0 1 1 1 0 0 } E8{ 0 0 0 0 −1 0 0 −1 } Ph{ 0 0 0 0 −1 $-\frac{1}{\sqrt{3}}$ 0 $-\sqrt{\frac{2}{3}}$ }	Rt{ 2 1 2 3 4 4 2 3 } Wt{ 1 0 0 0 1 −1 0 0 } Ht 21	Ds 110	Flipped Triad fpi=9 D_8 L fp_sm=6→5BH {{1, 4, 2}, {1, 6, 3}, {1, 5, 7}, {2, 5, 3}}, {{1, 3, 2}, {1, 7, 4}, {1, 5, 6}, {2, 6, 4}, {2, 7, 6}, {3, 4, 7}, {4, 6, 5}} / {{2, 7, 5}, {3, 4, 5}, {3, 7, 6}} flat triad/mask bits {1, 2, 4, 6, 3, 5, 7} {1, 1, 0, 1, 1, 0, 1} / Not Flipped Triad fpi=6 D_8 L fp_sm=6→5BH flat triad/mask bits {1, 3, 2, 7, 4, 5, 6} {1, 1, 0, 1, 1, 0, 1}
85	Φx_3 0 → 1/3 ∨ m_d L		{D8, F4, snubH4 24−1, 3Icosab, ring1, H4ring1, a7}	0_{apggsscc} 000000011_2	Bn{ 0 0 0 1 1 0 1 0 } E8{ 0 0 0 0 −1 0 0 1 } Ph{ 0 0 0 0 −1 $\frac{1}{\sqrt{3}}$ 0 $\sqrt{\frac{2}{3}}$ }	Rt{ −2 −1 −2 −3 −4 −6 −3 −4 } Wt{ 0 0 0 0 1 −1 0 0 } Ht 25	Lv 116	Flipped Triad fpi=6 D_8 L fp_sm=6→09H {{1, 3, 2}, {1, 4, 7}, {1, 5, 6}, {2, 6, 4}}, {{1, 3, 2}, {1, 3, 6}, {1, 5, 7}, {2, 5, 3}, {2, 5, 7}, {3, 4, 5}, {3, 6, 7}} / {{2, 6, 7}, {3, 4, 7}, {4, 5, 6}} flat triad/mask bits {1, 2, 3, 4, 7, 5, 6} {1, 0, 0, 1, 0, 0, 0} / Not Flipped Triad fpi=9 D_8 L fp_sm=6→09H flat triad/mask bits {1, 4, 2, 3, 6, 5, 7} {1, 0, 0, 1, 0, 0, 0}
86	Φx_2 0 → 1/3 ∨ c_d L		{D8, D7, F4, snubH4 24−3, 3Icosab, ring5, H4ring1, a7, a6}	0_{apggsscc} 000000010_2	Bn{ 0 0 0 1 1 0 0 1 } E8{ 0 0 0 0 −1 0 1 0 } Ph{ 0 0 0 0 −1 $\frac{1}{\sqrt{3}}$ $\frac{1}{\sqrt{2}}$ $-\frac{1}{\sqrt{6}}$ }	Rt{ 0 0 0 0 0 −1 −1 0 } Wt{ 0 0 0 0 1 −1 −1 1 } Ht 2	Ne 10	Flipped Triad fpi=3 D_8 L fp_sm=4→03H {{1, 3, 2}, {1, 6, 4}, {1, 5, 7}, {2, 4, 5}}, {{1, 2, 3}, {1, 7, 4}, {1, 5, 6}, {2, 5, 4}, {2, 6, 7}, {3, 4, 7}, {3, 5, 6}} / {{2, 6, 7}, {3, 4, 6}, {3, 5, 7}} flat triad/mask bits {1, 2, 3, 6, 4, 5, 7} {1, 1, 0, 0, 0, 0, 0} / Not Flipped Triad fpi=5 D_8 L fp_sm=7→0AH flat triad/mask bits {1, 2, 3, 7, 4, 5, 6} {0, 1, 0, 1, 0, 0, 0}
87	Φx_1 0 → 1/3 ∨ e_d L		{D8, E7, D7, E6(27), D6, F4, snubH4 24−4, snubH4 16−4, 3Icosab, 3Icosad, ring3, H4ring3, a7, a6, a5}	0_{apggsscc} 000000001_2	Bn{ 0 0 0 1 0 1 1 0 } E8{ 0 0 0 0 −1 1 0 0 } Ph{ 0 0 0 0 −1 $\frac{1}{\sqrt{3}}$ $-\frac{1}{\sqrt{2}}$ $-\frac{1}{\sqrt{6}}$ }	Rt{ 0 0 0 0 0 −1 0 0 } Wt{ 0 0 0 0 1 −2 1 1 } Ht 1	Li 3	Flipped Triad fpi=1 D_8 L fp_sm=5→08H {{1, 2, 3}, {1, 4, 5}, {1, 6, 7}, {2, 6, 4}}, {{1, 3, 2}, {1, 5, 4}, {1, 6, 7}, {2, 7, 4}, {2, 5, 7}, {3, 4, 7}, {3, 5, 6}} / {{2, 5, 6}, {3, 4, 6}, {3, 5, 7}} flat triad/mask bits {1, 3, 2, 4, 5, 6, 7} {0, 0, 0, 1, 0, 0, 0} / Not Flipped Triad fpi=2 D_8 L fp_sm=8→0BH flat triad/mask bits {1, 3, 2, 5, 4, 6, 7} {1, 1, 0, 1, 0, 0, 0}
176	$\overline{y_\mu}$ 0 → −1 ∧ w_1 R		{D8, E7, D7, E6, D6, D5, E4, snubH4 24−2, snubH4 16−2, 3Icosab, ring5, H4ring4, a7, a6, a5, a4}	0_{apggsscc} 011100100_2	Bn{ 1 1 0 1 1 0 0 1 } E8{ 0 0 0 1 −1 0 0 0 } Ph{ 0 0 $-\frac{1}{\sqrt{2}}$ $\frac{1}{\sqrt{2}}$ −1 0 0 0 }	Rt{ 0 0 0 0 1 0 0 0 } Wt{ 0 0 0 −1 2 −1 0 0 } Ht 1	Be 4	Flipped Triad fpi=16 D_8 R fp_sm=3→64H {{1, 2, 5}, {1, 3, 6}, {1, 7, 4}, {2, 3, 7}}, {{1, 2, 5}, {1, 3, 6}, {1, 7, 4}, {2, 3, 4}, {2, 4, 6}, {3, 5, 4}, {5, 7, 6}} / {{2, 6, 7}, {3, 7, 5}, {4, 6, 5}} flat triad/mask bits {1, 5, 2, 3, 6, 7, 4} {0, 0, 1, 0, 0, 1, 1} / Not Flipped Triad fpi=15 D_8 R fp_sm=3→64H flat triad/mask bits {1, 2, 5, 3, 6, 7, 4} {0, 0, 1, 0, 0, 1, 1}
185	$\overline{y_\mu}$ 0 ∨ w_d L		{D8, E7, D7, E6, D6, D5, E4, snubH4 24−2, 3Icosab, ring5, H4ring1, a7, a6, a5, a4}	0_{apggsscc} 011100000_2	Bn{ 1 0 1 1 1 0 1 0 } E8{ 0 0 1 −1 −1 0 0 0 } Ph{ 0 0 $\frac{1}{\sqrt{2}}$ $\frac{1}{\sqrt{2}}$ −1 0 0 0 }	Rt{ 0 0 0 1 1 0 0 0 } Wt{ 0 0 −1 1 1 −1 0 0 } Ht 2	Mg 12	Flipped Triad fpi=16 D_8 R fp_sm=3→7AH {{1, 2, 5}, {1, 6, 3}, {1, 4, 7}, {2, 7, 3}}, {{1, 2, 5}, {1, 6, 3}, {1, 4, 7}, {2, 4, 3}, {2, 6, 4}, {3, 5, 4}, {5, 7, 6}} / {{2, 7, 6}, {3, 7, 5}, {4, 6, 5}} flat triad/mask bits {1, 5, 2, 6, 3, 4, 7} {0, 1, 0, 1, 1, 1, 1} / Not Flipped Triad fpi=15 D_8 R fp_sm=3→7AH flat triad/mask bits {1, 2, 5, 6, 3, 4, 7} {0, 1, 0, 1, 1, 1, 1}
			{D8, E7, D7, E6, D6, D5, E4,					Flipped Triad fpi=16 D_8 R fp_sm=3→49H {{1, 5, 2}, {1, 3, 6}, {1, 4, 7}, {2, 7, 3}}, {{1, 5, 2}, {1, 3, 6}, {1, 4, 7}, {2, 4, 3}

Seq #	Symbol	2D/3D Shape	Groups	Particle Quantum Bits	Binary / E8 / Physics Coordinates	Algebra Root Weight / Height / Rt#=Atomic Element Number −−>	Ele #	Octonions
196	$\overline{\nu_\mu}$ 0 ∨ w_m R		snubH4 24−2, 3Icosab, ring4, H4ring2, a7, a6, a5, a4}	$0apggsscc$ 011101100_2	Bn{ 1 0 0 1 1 0 1 1 } E8{ 0 1 0 0 −1 0 0 0 } Ph{ 0 1 0 0 −1 0 0 0 }	Rt{ 0 0 1 1 1 0 0 0 } Wt{ 0 −1 1 0 1 −1 0 0 } Ht 3	Ca 20	flat triad/mask bits {1, 2, 5, 3, 6, 4, 7} {1, 0, 0, 1, 0, 0, 1} Flipped Triad fpi=15 D_8 R fp_sm=3→36H {{1, 5, 2}, {1, 3, 6}, {1, 4, 7}, {2, 7, 3}, {2, 6, 7}, {3, 5, 7}, {4, 6, 5}} flat triad/mask bits {1, 5, 2, 3, 6, 4, 7} {1, 0, 0, 1, 0, 0, 1} Not Flipped Triad fpi=16 D_8 R fp_sm=3→36H {{1, 5, 2}, {1, 3, 6}, {1, 4, 7}, {2, 4, 3}, {2, 6, 7}, {3, 5, 7}, {4, 6, 5}}
61	ν_μ 0 ∨ w_m R		{D8, E7, D7, E6, D6, D5, E4, snubH4 24−2, 3Icosac, ring4, H4ring2, a7, a6, a5, a4}	$0apggsscc$ 001101100_2	Bn{ 0 1 1 0 0 1 0 0 } E8{ 0 −1 0 0 1 0 0 0 } Ph{ 0 −1 0 0 1 0 0 0 }	Rt{ 0 0 −1 −1 −1 0 0 0 } Wt{ 0 1 −1 0 −1 1 0 0 } Ht 3	$\overline{\text{Ca}}$ 20	flat triad/mask bits {1, 5, 2, 6, 3, 7, 4} {0, 1, 1, 0, 1, 1, 0} Flipped Triad fpi=15 D_8 R fp_sm=3→05H {{1, 5, 2}, {1, 6, 3}, {1, 7, 4}, {2, 3, 4}, {2, 6, 7}, {3, 7, 5}, {4, 5, 6}} flat triad/mask bits {1, 2, 5, 6, 3, 7, 4} {0, 1, 1, 0, 1, 1, 0} Not Flipped Triad fpi=16 D_8 R fp_sm=3→05H {{1, 5, 2}, {1, 6, 3}, {1, 7, 4}, {2, 3, 7}, {2, 4, 6}, {3, 4, 5}, {5, 6, 7}}
72	ν_μ 0 ∨ w_d L		{D8, E7, D7, E6, D6, D5, E4, snubH4 24−2, 3Icosac, ring5, H4ring1, a7, a6, a5, a4}	$0apggsscc$ 001100000_2	Bn{ 0 1 0 0 0 1 0 1 } E8{ 0 0 −1 0 1 0 0 0 } Ph{ 0 0 $-\frac{1}{\sqrt{2}}$ $-\frac{1}{\sqrt{2}}$ 1 0 0 0 }	Rt{ 0 0 0 −1 −1 0 0 0 } Wt{ 0 0 1 −1 −1 1 0 0 } Ht 2	$\overline{\text{Mg}}$ 12	flat triad/mask bits {1, 2, 5, 3, 6, 7, 4} {1, 0, 1, 0, 0, 0, 0} Flipped Triad fpi=15 D_8 R fp_sm=3→1BH {{1, 5, 2}, {1, 3, 6}, {1, 7, 4}, {2, 4, 3}, {2, 6, 7}, {3, 5, 7}, {4, 5, 6}} flat triad/mask bits {1, 5, 2, 3, 6, 7, 4} {1, 0, 1, 0, 0, 0, 0} Not Flipped Triad fpi=16 D_8 R fp_sm=3→1BH {{1, 5, 2}, {1, 6, 3}, {1, 7, 4}, {2, 7, 3}, {2, 6, 7}, {3, 4, 5}, {5, 6, 7}}
81	ν_μ 0→1 ∧ w_l R		{D8, E7, D7, E6, D6, D5, E4, snubH4 24−2, snubH4 16−2, 3Icosac, ring5, H4ring4, a7, a6, a5, a4}	$0apggsscc$ 001100100_2	Bn{ 0 0 1 0 0 1 1 0 } E8{ 0 0 0 −1 1 0 0 0 } Ph{ 0 0 $\frac{1}{\sqrt{2}}$ $-\frac{1}{\sqrt{2}}$ 1 0 0 0 }	Rt{ 0 0 0 0 −1 0 0 0 } Wt{ 0 0 0 1 −2 1 0 0 } Ht 1	$\overline{\text{Be}}$ 4	flat triad/mask bits {1, 2, 5, 6, 3, 4, 7} {1, 1, 0, 1, 1, 0, 0} Flipped Triad fpi=15 D_8 R fp_sm=3→1BH {{1, 5, 2}, {1, 6, 3}, {1, 4, 7}, {2, 4, 3}, {2, 6, 7}, {3, 5, 7}, {4, 5, 6}} flat triad/mask bits {1, 5, 2, 6, 3, 4, 7} {1, 1, 0, 1, 1, 0, 0} Not Flipped Triad fpi=16 D_8 R fp_sm=3→1BH {{1, 5, 2}, {1, 6, 3}, {1, 4, 7}, {2, 7, 3}, {2, 6, 7}, {3, 4, 5}, {5, 6, 7}}
170	$\overline{\Phi x_1}$ 0→−1/3 ∨ o_d L		{D8, E7, D7, D6, F4, snubH4 24−4, snubH4 16−4, 3Icosac, 3Icosad, ring3, H4ring3, a7, a6, a5}	$0apggsscc$ 010000001_2	Bn{ 1 1 1 0 1 0 0 1 } E8{ 0 0 0 0 1 −1 0 0 } Ph{ 0 0 0 0 1 $-\frac{1}{\sqrt{3}}$ $\frac{1}{\sqrt{2}}$ $\frac{1}{\sqrt{6}}$ }	Rt{ 0 0 0 0 0 1 0 0 } Wt{ 0 0 0 0 −1 2 −1 −1 } Ht 1	Li 3	flat triad/mask bits {1, 3, 2, 4, 5, 7, 6} {0, 0, 1, 0, 1, 1, 1} Flipped Triad fpi=2 D_8 L fp_sm=8→74H {{1, 2, 3}, {1, 4, 5}, {1, 7, 6}, {2, 4, 7}, {2, 6, 5}, {3, 6, 4}, {3, 7, 5}} flat triad/mask bits {1, 3, 2, 4, 5, 7, 6} {0, 0, 1, 0, 1, 1, 1} Not Flipped Triad fpi=1 D_8 L fp_sm=5→77H {{1, 3, 2}, {1, 5, 4}, {1, 7, 6}, {2, 4, 6}, {2, 7, 5}, {3, 7, 4}, {3, 6, 5}}
171	$\overline{\Phi x_2}$ 0→−1/3 ∨ c_d L		{D8, D7, F4, snubH4 24−3, 3Icosac, ring5, H4ring1, a7, a6}	$0apggsscc$ 010000010_2	Bn{ 1 1 1 0 0 1 1 0 } E8{ 0 0 0 0 1 0 −1 0 } Ph{ 0 0 0 0 1 $-\frac{1}{\sqrt{3}}$ $-\frac{1}{\sqrt{2}}$ $\frac{1}{\sqrt{6}}$ }	Rt{ 0 0 0 0 0 1 1 0 } Wt{ 0 0 0 0 −1 1 1 −1 } Ht 2	Ne 10	flat triad/mask bits {1, 2, 3, 4, 7, 6, 5} {1, 0, 1, 0, 1, 1, 1} Flipped Triad fpi=5 D_8 L fp_sm=7→75H {{1, 3, 2}, {1, 4, 7}, {1, 6, 5}, {2, 4, 5}, {2, 6, 7}, {3, 6, 4}, {3, 7, 5}} flat triad/mask bits {1, 2, 3, 4, 7, 6, 5} {0, 0, 1, 0, 1, 1, 1} Not Flipped Triad fpi=3 D_8 L fp_sm=4→7CH {{1, 2, 3}, {1, 4, 6}, {1, 7, 5}, {2, 5, 4}, {2, 7, 6}, {3, 7, 4}, {3, 6, 5}}
172	$\overline{\Phi x_3}$ 0→−1/3 ∨ m_d L		{D8, F4, snubH4 24−1, 3Icosac, ring1, H4ring1, a7}	$0apggsscc$ 010000011_2	Bn{ 1 1 1 0 0 1 0 1 } E8{ 0 0 0 0 1 0 0 −1 } Ph{ 0 0 0 0 1 $-\frac{1}{\sqrt{3}}$ 0 $-\sqrt{\frac{2}{3}}$ }	Rt{ 2 1 2 3 4 6 3 4 } Wt{ 0 0 0 0 −1 1 0 0 } Ht 25	Lv 116	flat triad/mask bits {1, 4, 2, 6, 3, 7, 5} {0, 1, 1, 0, 1, 1, 1} Flipped Triad fpi=9 D_8 L fp_sm=6→76H {{1, 2, 4}, {1, 6, 3}, {1, 7, 5}, {2, 3, 5}, {2, 6, 7}, {3, 7, 4}, {4, 6, 5}} flat triad/mask bits {1, 2, 3, 7, 4, 6, 5} {0, 1, 1, 0, 1, 1, 1} Not Flipped Triad fpi=6 D_8 L fp_sm=6→76H {{1, 2, 4}, {1, 6, 3}, {1, 7, 5}, {2, 3, 5}, {2, 7, 6}, {3, 7, 4}, {4, 6, 5}}
173	Φx_3 0→1/3 ∧ m_m L		{D8, E7(56), F4, snubH4 24−4, 3Icosac, ring1, H4ring1}	$0apggsscc$ 000001011_2	Bn{ 1 1 1 0 0 0 1 1 } E8{ 0 0 0 0 1 0 0 1 } Ph{ 0 0 0 0 1 $\frac{1}{\sqrt{3}}$ 0 $\sqrt{\frac{2}{3}}$ }	Rt{ −2 −1 −2 −3 −4 −4 −2 −3 } Wt{ −1 0 0 0 −1 1 0 0 } Ht 21	$\overline{\text{Ds}}$ 110	flat triad/mask bits {1, 3, 2, 4, 7, 6, 5} {0, 0, 1, 0, 0, 1, 0} Flipped Triad fpi=6 D_8 L fp_sm=6→24H {{1, 2, 3}, {1, 4, 7}, {1, 6, 5}, {2, 4, 6}, {2, 5, 7}, {3, 5, 4}, {3, 6, 7}} flat triad/mask bits {1, 2, 4, 3, 6, 7, 5} {0, 0, 1, 0, 0, 1, 0} Not Flipped Triad fpi=9 D_8 L fp_sm=6→24H {{1, 2, 4}, {1, 3, 6}, {1, 7, 5}, {2, 3, 5}, {2, 6, 7}, {3, 7, 4}, {4, 5, 6}}
174	Φx_2 0→1/3 ∧ c_m L		{D8, E7(56), D7, F4, snubH4 24−1, 3Icosac, 3Icosad, ring4, H4ring2}	$0apggsscc$ 000001010_2	Bn{ 1 1 0 1 1 1 0 0 } E8{ 0 0 0 0 1 0 1 0 } Ph{ 0 0 0 0 1 $\frac{1}{\sqrt{3}}$ $\frac{1}{\sqrt{2}}$ $-\frac{1}{\sqrt{6}}$ }	Rt{ 0 0 0 0 0 1 0 1 } Wt{ −1 0 0 0 −1 1 −1 1 } Ht 2	F 9	flat triad/mask bits {1, 3, 2, 6, 4, 7, 5} {0, 1, 1, 1, 0, 1, 0} Flipped Triad fpi=3 D_8 L fp_sm=4→2EH {{1, 2, 3}, {1, 6, 4}, {1, 7, 5}, {2, 5, 4}, {2, 6, 7}, {3, 7, 4}, {3, 5, 6}} flat triad/mask bits {1, 3, 2, 7, 4, 6, 5} {1, 1, 1, 0, 0, 1, 0} Not Flipped Triad fpi=5 D_8 L fp_sm=7→27H {{1, 2, 3}, {1, 7, 4}, {1, 6, 5}, {2, 4, 5}, {2, 6, 7}, {3, 6, 4}, {3, 5, 7}}
175	Φx_1 0→1/3 ∧ o_m L		{D8, E7, E7(56), D7, D6, F4, snubH4 24−3, 3Icosac, ring4, H4ring2}	$0apggsscc$ 000001001_2	Bn{ 1 1 0 1 1 0 1 0 } E8{ 0 0 0 0 1 1 0 0 } Ph{ 0 0 0 0 1 $\frac{1}{\sqrt{3}}$ $-\frac{1}{\sqrt{2}}$ $-\frac{1}{\sqrt{6}}$ }	Rt{ 0 0 0 0 0 1 1 1 } Wt{ −1 0 0 0 −1 0 1 1 } Ht 3	S 16	flat triad/mask bits {1, 2, 3, 4, 5, 7, 6} {1, 0, 1, 0, 0, 1, 0} Flipped Triad fpi=1 D_8 L fp_sm=5→25H {{1, 3, 2}, {1, 4, 5}, {1, 7, 6}, {2, 4, 6}, {2, 5, 7}, {3, 7, 4}, {3, 5, 6}} flat triad/mask bits {1, 2, 3, 5, 4, 7, 6} {0, 1, 1, 0, 0, 1, 0} Not Flipped Triad fpi=2 D_8 L fp_sm=8→26H {{1, 3, 2}, {1, 5, 4}, {1, 7, 6}, {2, 4, 7}, {2, 5, 6}, {3, 6, 4}, {3, 5, 7}}
183	$\overline{\mu}$ ∨ y_d L		{D8, E7, E7(56), D7, E6, D6, D5, snubH4 24−3, snubH4 16−3, 3Icosac, ring5, H4ring4}	$0apggsscc$ 000100000_2	Bn{ 1 1 0 0 0 1 1 1 } E8{ 0 0 0 1 1 0 0 0 } Ph{ 0 0 $-\frac{1}{\sqrt{2}}$ $\frac{1}{\sqrt{2}}$ 1 0 0 0 }	Rt{ 0 0 0 0 1 2 1 1 } Wt{ −1 0 0 −1 0 1 0 0 } Ht 5	Zn 30	flat triad/mask bits {1, 5, 2, 6, 3, 4, 7} {0, 1, 0, 0, 0, 0, 0} Flipped Triad fpi=16 D_8 L fp_sm=3→02H {{1, 2, 5}, {1, 6, 3}, {1, 4, 7}, {2, 3, 7}, {2, 4, 6}, {3, 4, 5}, {5, 6, 7}} flat triad/mask bits {1, 2, 5, 6, 3, 4, 7} {0, 1, 0, 0, 0, 0, 0} Not Flipped Triad fpi=15 D_8 L fp_sm=3→02H {{1, 2, 5}, {1, 6, 3}, {1, 4, 7}, {2, 3, 4}, {2, 6, 7}, {3, 5, 7}, {4, 5, 6}}
192	μ → ∧ y_l R		{D8, E7, E7(56), D7, E6, D6, D5, snubH4 24−4, 3Icosac, ring4, H4ring2}	$0apggsscc$ 000100100_2	Bn{ 1 0 1 0 1 0 1 1 } E8{ 0 0 1 0 1 0 0 0 } Ph{ 0 0 $\frac{1}{\sqrt{2}}$ $\frac{1}{\sqrt{2}}$ 1 0 0 0 }	Rt{ 0 0 0 1 1 2 1 1 } Wt{ −1 0 −1 1 −1 1 0 0 } Ht 6	Rb 37	flat triad/mask bits {1, 5, 2, 3, 6, 7, 4} {0, 0, 1, 1, 1, 0, 0} Flipped Triad fpi=16 D_8 L fp_sm=3→1CH {{1, 2, 5}, {1, 3, 6}, {1, 7, 4}, {2, 7, 3}, {2, 6, 4}, {3, 4, 5}, {5, 6, 7}} flat triad/mask bits {1, 2, 5, 3, 6, 7, 4} {0, 0, 1, 1, 1, 0, 0} Not Flipped Triad fpi=15 D_8 L fp_sm=3→1CH {{1, 2, 5}, {1, 3, 6}, {1, 7, 4}, {2, 4, 3}, {2, 7, 6}, {3, 5, 7}, {4, 5, 6}}
			{D8, E7, E7(56), D7, E6, D6, D5,					Flipped Triad fpi=16 D_8 L fp_sm=3→2FH {{1, 5, 2}, {1, 6, 3}, {1, 7, 4}, {2, 7, 3}, {2, 6, 7}, {3, 4, 5}, {5, 6, 7}} Not Flipped Triad fpi=15 D_8 L fp_sm=3→2FH {{1, 5, 2}, {1, 6, 3}, {1, 7, 4}, {2, 4, 3}, {2, 6, 7}, {3, 5, 7}, {4, 5, 6}}

Seq ♯	Symbol	2D/3D Shape	Groups	Particle Quantum Bits	Binary / E8 / Physics Coordinates	Algebra Root Weight / Height / Rt♯=Atomic Element Number −−>	Ele ♯	Octonions
203	$\mu_{\mathrm{Ym}}^{\rightarrow 0}{}_{\mathrm{L}}^{\wedge}$		snubH4 24−1, snubH4 16−1, 3Icosac, 3Icosad, ring3, H4ring3}	0apggsscc 000101000_2	Bn{ 0 1 1 1 0 1 0 1 } E8{ 0 1 0 0 1 0 0 0 } Ph{ 0 1 0 0 1 0 0 0 }	Rt{ 0 0 1 1 1 2 1 1 } Wt{ −1 −1 1 0 −1 1 0 0 } Ht 7	Rh 45	{{1, 3, 2}, {1, 6, 5}, {2, 7, 4}, {2, 7, 5}}, {{1, 3, 2}, {1, 6, 5}, {2, 7, 4}, {2, 7, 5}} {{2, 4, 6}, {3, 5, 4}, {5, 6, 7}} {{2, 6, 7}, {3, 7, 5}, {4, 5, 6}} flat triad/mask bits {1, 2, 5, 6, 3, 7, 4} {1, 5, 2, 6, 3, 7, 4} {1, 1, 1, 1, 0, 1, 0} {1, 1, 1, 1, 0, 1, 0}
44	$\mathrm{s}_{\mathrm{m}}^{-1/3}{}_{\mathrm{R}}^{\vee}$		{D8, E7(56), snubH4Φ 24−3, 3Icosaa, 3Icosad, ring2, H4Φring3}	0apggsscc 000101111_2	Bn{ 1 0 1 1 0 0 0 0 } E8{ −1 0 0 0 0 0 0 −1 } Ph{ −1 0 0 0 0 $-\frac{1}{\sqrt{3}}$ 0 $-\sqrt{\frac{2}{3}}$ }	Rt{ 2 0 1 2 3 4 2 3 } Wt{ 1 −1 0 0 0 0 0 0 } Ht 17	Fm 100	Flipped Triad fpi=22 D_8 L fp_sm=6→3AH: {{1, 2, 6}, {1, 5, 3}, {1, 4, 7}, {2, 7, 3}}, {{2, 4, 3}, {2, 5, 4}, {3, 6, 4}, {5, 6, 7}} Not Flipped Triad fpi=21 D_8 L fp_sm=6→3AH: {{1, 2, 6}, {1, 5, 3}, {1, 4, 7}, {2, 4, 3}, {2, 7, 5}, {3, 7, 6}, {4, 5, 6}} flat triad/mask bits {1, 6, 2, 5, 3, 4, 7} {1, 2, 6, 5, 3, 4, 7} {0, 1, 0, 1, 1, 1, 0} {0, 1, 0, 1, 1, 1, 0}
39	$\overline{\mathrm{e}_{\mathrm{S}}\phi}_{\mathrm{f_m}}^{0}{}_{\mathrm{L}}^{\wedge}$		{D8, E7, E7(56), D7, E6, D6, E5, D5, D4, D4Dual, F4, snubH4Φ 24−1, D3, 3Icosaa, 3Icosad, ring2, H4Φring4}	0apggsscc 011001001_2	Bn{ 1 1 0 1 0 0 0 0 } E8{ −1 0 −1 0 0 0 0 0 } Ph{ −1 0 $-\frac{1}{\sqrt{2}}$ $-\frac{1}{\sqrt{2}}$ 0 0 0 0 }	Rt{ 0 −1 −1 −2 −2 −2 −1 −1 } Wt{ 1 −1 1 −1 0 0 0 0 } Ht 10	$\overline{\mathrm{Eu}}$ 63	Flipped Triad fpi=1 D_8 R fp_sm=5→5DH: {{1, 3, 2}, {1, 4, 5}, {1, 7, 6}, {2, 6, 4}, {2, 7, 5}, {3, 4, 7}, {3, 6, 5}} Not Flipped Triad fpi=2 D_8 R fp_sm=8→5EH: {{1, 2, 3}, {1, 5, 4}, {1, 7, 6}, {2, 7, 4}, {2, 6, 5}, {3, 4, 6}, {3, 7, 5}} flat triad/mask bits {1, 2, 3, 4, 5, 7, 6} {1, 2, 3, 5, 4, 7, 6} {0, 1, 1, 1, 1, 0, 1} {0, 1, 1, 1, 1, 0, 1}
54	$\overline{\mu}_{\mathrm{Ym}}^{+\rightarrow 0}{}_{\mathrm{L}}^{\wedge}$		{D8, E7, E7(56), D7, E6, D6, D5, snubH4 24−1, snubH4 16−1, 3Icosab, 3Icosad, ring3, H4ring3}	0apggsscc 010101000_2	Bn{ 1 0 0 0 1 0 1 0 } E8{ 0 −1 0 0 −1 0 0 0 } Ph{ 0 −1 0 0 −1 0 0 0 }	Rt{ 0 0 −1 −1 −1 −2 −1 −1 } Wt{ 1 1 −1 0 1 −1 0 0 } Ht 7	$\overline{\mathrm{Rh}}$ 45	Flipped Triad fpi=15 D_8 L fp_sm=3→50H: {{1, 2, 5}, {1, 3, 6}, {1, 4, 7}, {2, 3, 4}, {2, 7, 6}, {3, 5, 7}, {4, 6, 5}} Not Flipped Triad fpi=16 D_8 L fp_sm=3→50H: {{1, 2, 5}, {1, 3, 6}, {1, 4, 7}, {2, 3, 7}, {2, 6, 4}, {3, 4, 5}, {5, 7, 6}} flat triad/mask bits {1, 5, 2, 3, 6, 4, 7} {1, 2, 5, 3, 6, 4, 7} {0, 0, 0, 0, 1, 0, 1} {0, 0, 0, 0, 1, 0, 1}
87	$\Phi\mathrm{x}_1{}_{\mathrm{d}}^{0\rightarrow 1/3}{}_{\mathrm{L}}^{\vee}$		{D8, E7, D7, E6(27), D6, F4, snubH4 24−4, snubH4 16−4, 3Icosab, 3Icosad, ring3, H4ring3, a7, a6, a5}	0apggsscc 000000001_2	Bn{ 0 0 0 1 0 1 1 0 } E8{ 0 0 0 0 −1 1 0 0 } Ph{ 0 0 0 0 −1 $\frac{1}{\sqrt{3}}$ $-\frac{1}{\sqrt{2}}$ $-\frac{1}{\sqrt{6}}$ }	Rt{ 0 0 0 0 0 −1 0 0 } Wt{ 0 0 0 0 1 −2 1 1 } Ht 1	$\overline{\mathrm{Li}}$ 3	Flipped Triad fpi=1 D_8 L fp_sm=5→08H: {{1, 2, 3}, {1, 4, 5}, {1, 6, 7}, {2, 6, 4}, {2, 5, 7}, {3, 4, 7}, {3, 5, 6}} Not Flipped Triad fpi=2 D_8 L fp_sm=8→0BH: {{1, 3, 2}, {1, 5, 4}, {1, 6, 7}, {2, 7, 4}, {2, 5, 6}, {3, 4, 6}, {3, 5, 7}} flat triad/mask bits {1, 3, 2, 4, 5, 6, 7} {1, 3, 2, 5, 4, 6, 7} {0, 0, 0, 1, 0, 0, 0} {1, 1, 0, 1, 0, 0, 0}
83	$\overline{\Phi\mathrm{x}_2}{}_{\mathrm{c_m}}^{0\rightarrow -1/3}{}_{\mathrm{L}}^{\wedge}$		{D8, E7(56), D7, F4, snubH4 24−1, 3Icosab, 3Icosad, ring4, H4ring2}	0apggsscc 010001010_2	Bn{ 0 0 1 0 0 0 1 1 } E8{ 0 0 0 0 −1 0 −1 0 } Ph{ 0 0 0 0 −1 $-\frac{1}{\sqrt{3}}$ $-\frac{1}{\sqrt{2}}$ $\frac{1}{\sqrt{6}}$ }	Rt{ 0 0 0 0 0 −1 0 −1 } Wt{ 1 0 0 0 1 −1 1 −1 } Ht 2	$\overline{\mathrm{F}}$ 9	Flipped Triad fpi=5 D_8 L fp_sm=7→58H: {{1, 2, 3}, {1, 4, 7}, {1, 5, 6}, {2, 5, 4}, {2, 7, 6}, {3, 4, 6}, {3, 7, 5}} Not Flipped Triad fpi=3 D_8 L fp_sm=4→51H: {{1, 2, 3}, {1, 4, 6}, {1, 5, 7}, {2, 4, 5}, {2, 7, 6}, {3, 4, 7}, {3, 6, 5}} flat triad/mask bits {1, 3, 2, 4, 7, 5, 6} {1, 3, 2, 4, 6, 5, 7} {0, 0, 0, 1, 1, 0, 1} {1, 0, 0, 0, 1, 0, 1}
49	$\overline{\mathrm{e_T}\phi}_{\mathrm{f_d}}^{0\rightarrow -1}{}_{\mathrm{L}}^{\vee}$		{D8, E7, D7, E6, D6, E5, D5, E4, D4, D4Dual, F4, snubH4Φ 24−1, snubH4Φ 16−1, 3Icosaa, 3Icosad, ring6, H4Φring4, a7, a6, a5, a4, a3}	0apggsscc 011000010_2	Bn{ 1 0 0 1 1 0 0 0 } E8{ −1 0 0 1 0 0 0 0 } Ph{ −1 0 $-\frac{1}{\sqrt{2}}$ $\frac{1}{\sqrt{2}}$ 0 0 0 0 }	Rt{ 0 −1 −1 −1 0 0 0 0 } Wt{ 0 −1 0 −1 1 0 0 0 } Ht 3	$\overline{\mathrm{Sc}}$ 21	Flipped Triad fpi=3 D_8 R fp_sm=4→7BH: {{1, 3, 2}, {1, 6, 4}, {1, 5, 7}, {2, 5, 4}, {2, 7, 6}, {3, 7, 4}, {3, 6, 5}} Not Flipped Triad fpi=5 D_8 R fp_sm=7→72H: {{1, 2, 3}, {1, 7, 4}, {1, 5, 6}, {2, 4, 5}, {2, 7, 6}, {3, 6, 4}, {3, 7, 5}} flat triad/mask bits {1, 2, 3, 6, 4, 5, 7} {1, 2, 3, 7, 4, 5, 6} {1, 1, 0, 1, 1, 1, 1} {0, 1, 0, 0, 1, 1, 1}
213	$\overline{\mathrm{s}}_{\mathrm{m_m}}^{1/3}{}_{\mathrm{R}}^{\vee}$		{D8, E7(56), snubH4Φ 24−3, 3Icosad, ring2, H4Φring3}	0apggsscc 010101111_2	Bn{ 0 1 0 0 1 1 1 1 } E8{ 1 0 0 0 0 0 1 1 } Ph{ 1 0 0 0 0 $\frac{1}{\sqrt{3}}$ 0 $\sqrt{\frac{2}{3}}$ }	Rt{ −2 0 −1 −2 −3 −4 −2 −3 } Wt{ −1 1 0 0 0 0 0 0 } Ht 17	$\overline{\mathrm{Fm}}$ 100	Flipped Triad fpi=21 D_8 L fp_sm=6→45H: {{1, 6, 2}, {1, 3, 5}, {1, 7, 4}, {2, 3, 4}, {2, 5, 7}, {3, 6, 7}, {4, 6, 5}} Not Flipped Triad fpi=22 D_8 L fp_sm=6→45H: {{1, 6, 2}, {1, 3, 5}, {1, 7, 4}, {2, 3, 7}, {2, 4, 5}, {3, 4, 6}, {5, 7, 6}} flat triad/mask bits {1, 2, 6, 3, 5, 7, 4} {1, 6, 2, 3, 5, 7, 4} {1, 0, 1, 0, 0, 0, 1} {1, 0, 1, 0, 0, 0, 1}
218	$\mathrm{e_S}\phi_{\mathrm{f_m}}^{0}{}_{\mathrm{L}}^{\wedge}$		{D8, E7, E7(56), D7, E6, D6, E5, D5, D4, D4Dual, F4, snubH4Φ 24−1, D3, 3Icosad, ring2, H4Φring4}	0apggsscc 001001001_2	Bn{ 0 0 1 0 1 1 1 1 } E8{ 1 0 1 0 0 0 0 0 } Ph{ 1 0 $\frac{1}{\sqrt{2}}$ $\frac{1}{\sqrt{2}}$ 0 0 0 0 }	Rt{ 0 1 1 2 2 2 1 1 } Wt{ −1 1 −1 1 0 0 0 0 } Ht 10	Eu 63	Flipped Triad fpi=2 D_8 R fp_sm=8→21H: {{1, 3, 2}, {1, 4, 5}, {1, 6, 7}, {2, 4, 7}, {2, 5, 6}, {3, 6, 4}, {3, 5, 7}} Not Flipped Triad fpi=1 D_8 R fp_sm=5→22H: {{1, 2, 3}, {1, 5, 4}, {1, 6, 7}, {2, 4, 6}, {2, 5, 7}, {3, 7, 4}, {3, 5, 6}} flat triad/mask bits {1, 2, 3, 4, 5, 6, 7} {1, 2, 3, 5, 4, 6, 7} {1, 0, 0, 0, 0, 1, 0} {0, 1, 0, 0, 0, 1, 0}
203	$\mu_{\mathrm{Ym}}^{\rightarrow 0}{}_{\mathrm{L}}^{\wedge}$		{D8, E7, E7(56), D7, E6, D6, D5, snubH4 24−1, snubH4 16−1, 3Icosac, 3Icosad, ring3, H4ring3}	0apggsscc 000101000_2	Bn{ 0 1 1 1 0 1 0 1 } E8{ 0 1 0 0 1 0 0 0 } Ph{ 0 1 0 0 1 0 0 0 }	Rt{ 0 0 1 1 1 2 1 1 } Wt{ −1 −1 1 0 −1 1 0 0 } Ht 7	Rh 45	Flipped Triad fpi=16 D_8 L fp_sm=3→2FH: {{1, 5, 2}, {1, 6, 3}, {1, 7, 4}, {2, 7, 3}, {2, 4, 6}, {3, 5, 4}, {5, 6, 7}} Not Flipped Triad fpi=15 D_8 L fp_sm=3→2FH: {{1, 5, 2}, {1, 6, 3}, {1, 7, 4}, {2, 4, 3}, {2, 6, 7}, {3, 7, 5}, {4, 5, 6}} flat triad/mask bits {1, 2, 5, 6, 3, 7, 4} {1, 5, 2, 6, 3, 7, 4} {1, 1, 1, 1, 0, 1, 0} {1, 1, 1, 1, 0, 1, 0}
170	$\overline{\Phi\mathrm{x}_1}{}_{\mathrm{o_d}}^{0\rightarrow -1/3}{}_{\mathrm{L}}^{\vee}$		{D8, E7, D7, D6, F4, snubH4 24−4, snubH4 16−4, 3Icosac, 3Icosad, ring3, H4ring3, a7, a6, a5}	0apggsscc 010000001_2	Bn{ 1 1 1 0 1 0 0 1 } E8{ 0 0 0 0 1 −1 0 0 } Ph{ 0 0 0 0 1 $-\frac{1}{\sqrt{3}}$ $\frac{1}{\sqrt{2}}$ $\frac{1}{\sqrt{6}}$ }	Rt{ 0 0 0 0 0 1 0 0 } Wt{ 0 0 0 0 −1 2 −1 −1 } Ht 1	$\overline{\mathrm{Li}}$ 3	Flipped Triad fpi=2 D_8 L fp_sm=8→74H: {{1, 2, 3}, {1, 4, 5}, {1, 7, 6}, {2, 4, 7}, {2, 6, 5}, {3, 6, 4}, {3, 7, 5}} Not Flipped Triad fpi=1 D_8 L fp_sm=5→77H: {{1, 3, 2}, {1, 5, 4}, {1, 7, 6}, {2, 4, 6}, {2, 7, 5}, {3, 7, 4}, {3, 6, 5}} flat triad/mask bits {1, 3, 2, 4, 5, 7, 6} {1, 3, 2, 5, 4, 7, 6} {0, 0, 1, 0, 1, 1, 1} {1, 1, 1, 0, 1, 1, 1}
174	$\Phi\mathrm{x}_2{}_{\mathrm{c_m}}^{0\rightarrow 1/3}{}_{\mathrm{L}}^{\wedge}$		{D8, E7(56), D7, F4, snubH4 24−1, 3Icosac, 3Icosad, ring4, H4ring2}	0apggsscc 000001010_2	Bn{ 1 1 0 1 1 1 0 0 } E8{ 0 0 0 0 1 0 1 0 } Ph{ 0 0 0 0 1 $\frac{1}{\sqrt{3}}$ $\frac{1}{\sqrt{2}}$ $-\frac{1}{\sqrt{6}}$ }	Rt{ 0 0 0 0 0 1 0 1 } Wt{ −1 0 0 0 −1 1 −1 1 } Ht 2	F 9	Flipped Triad fpi=3 D_8 L fp_sm=4→2EH: {{1, 2, 3}, {1, 6, 4}, {1, 7, 5}, {2, 5, 4}, {2, 6, 7}, {3, 7, 4}, {3, 5, 6}} Not Flipped Triad fpi=5 D_8 L fp_sm=7→27H: {{1, 3, 2}, {1, 7, 4}, {1, 6, 5}, {2, 4, 5}, {2, 6, 7}, {3, 6, 4}, {3, 5, 7}} flat triad/mask bits {1, 3, 2, 6, 4, 7, 5} {1, 3, 2, 7, 4, 6, 5} {0, 1, 1, 1, 0, 1, 0} {1, 1, 1, 0, 0, 1, 0}
			{D8, E7, D7, E6, D6, E5, D5, E4, D4, D4Dual, F4,		Bn{ 0 1 1 0 0 1 1 1 }			Flipped Triad fpi=5 D_8 R fp_sm=7→0DH: Not Flipped Triad fpi=3 D_8 R fp_sm=4→04H

208 $e_T\phi^{0\to1}_{\vee}$ g_d L

D4, D4Dual, F4, snubH4Φ 24−1, snubH4Φ 16−1, 3Icosad, ring6, H4Φring4, a7, a6, a5, a4, a3}

0apggsscc 001000010_2

Bit{ 0 1 1 0 0 1 1 1 }
ES{ 1 0 0 −1 0 0 0 0 }
Ph{ 1 0 $\frac{1}{\sqrt{2}}$ $-\frac{1}{\sqrt{2}}$ 0 0 0 0 }

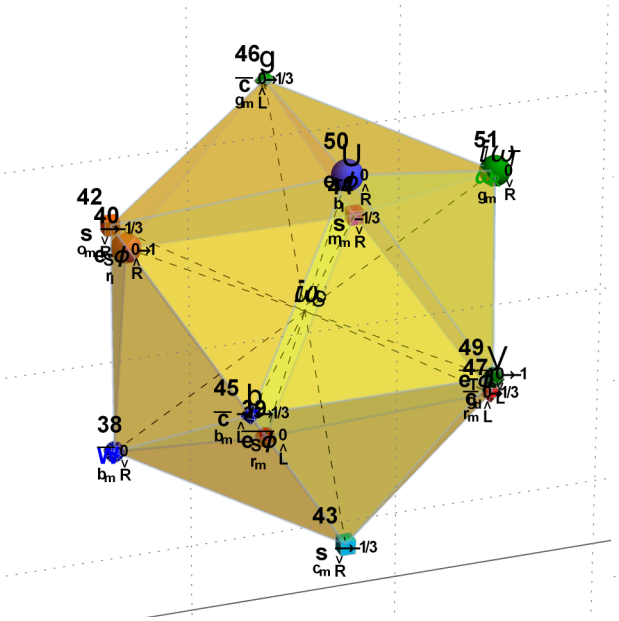
Rt{ 0 1 1 1 0 0 0 0 }
Wt{ 0 1 0 1 −1 0 0 0 }
Ht 3

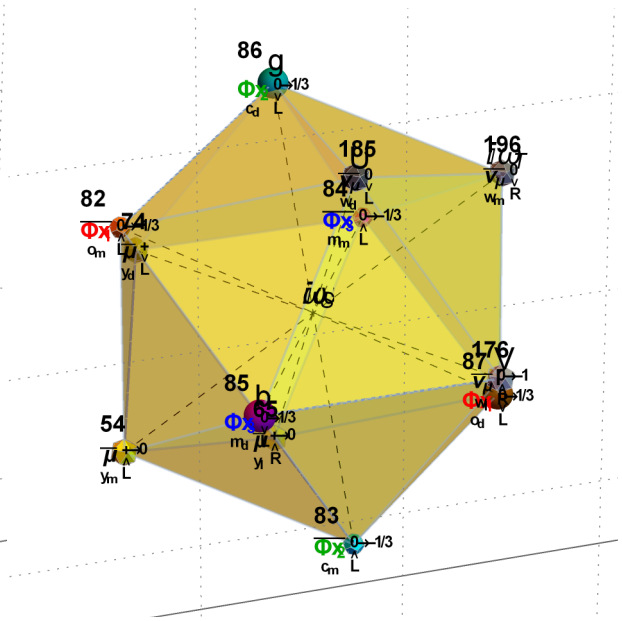
Sc 21 {{1, 3, 2}, {1, 4, 7}, {1, 6, 5}, {2, 5, 4}, {2, 6, 7}, {3, 4, 6}, {3, 5, 7}}

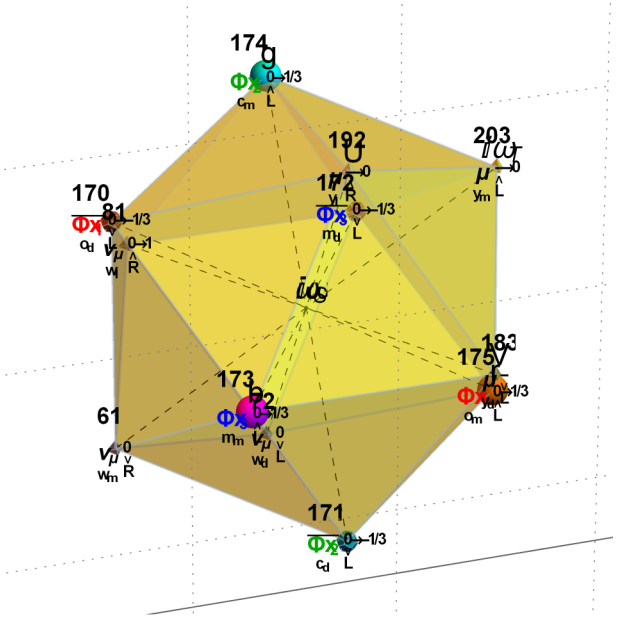
flat triad/mask bits
{1, 2, 3, 4, 7, 6, 5}
{1, 0, 1, 1, 0, 0, 0}

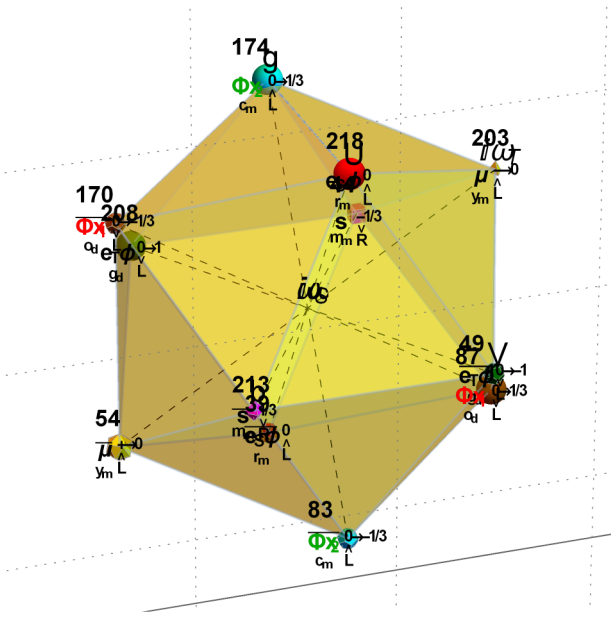
{{1, 2, 3}, {1, 4, 6}, {1, 7, 5}, {2, 4, 5}, {2, 6, 7}, {3, 4, 7}, {3, 5, 6}}

flat triad/mask bits
{1, 2, 3, 4, 6, 7, 5}
{0, 0, 1, 0, 0, 0, 0}









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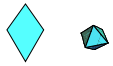
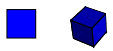
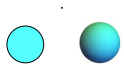
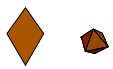
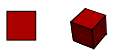
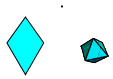
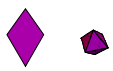
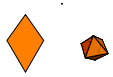
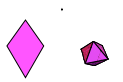
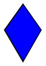
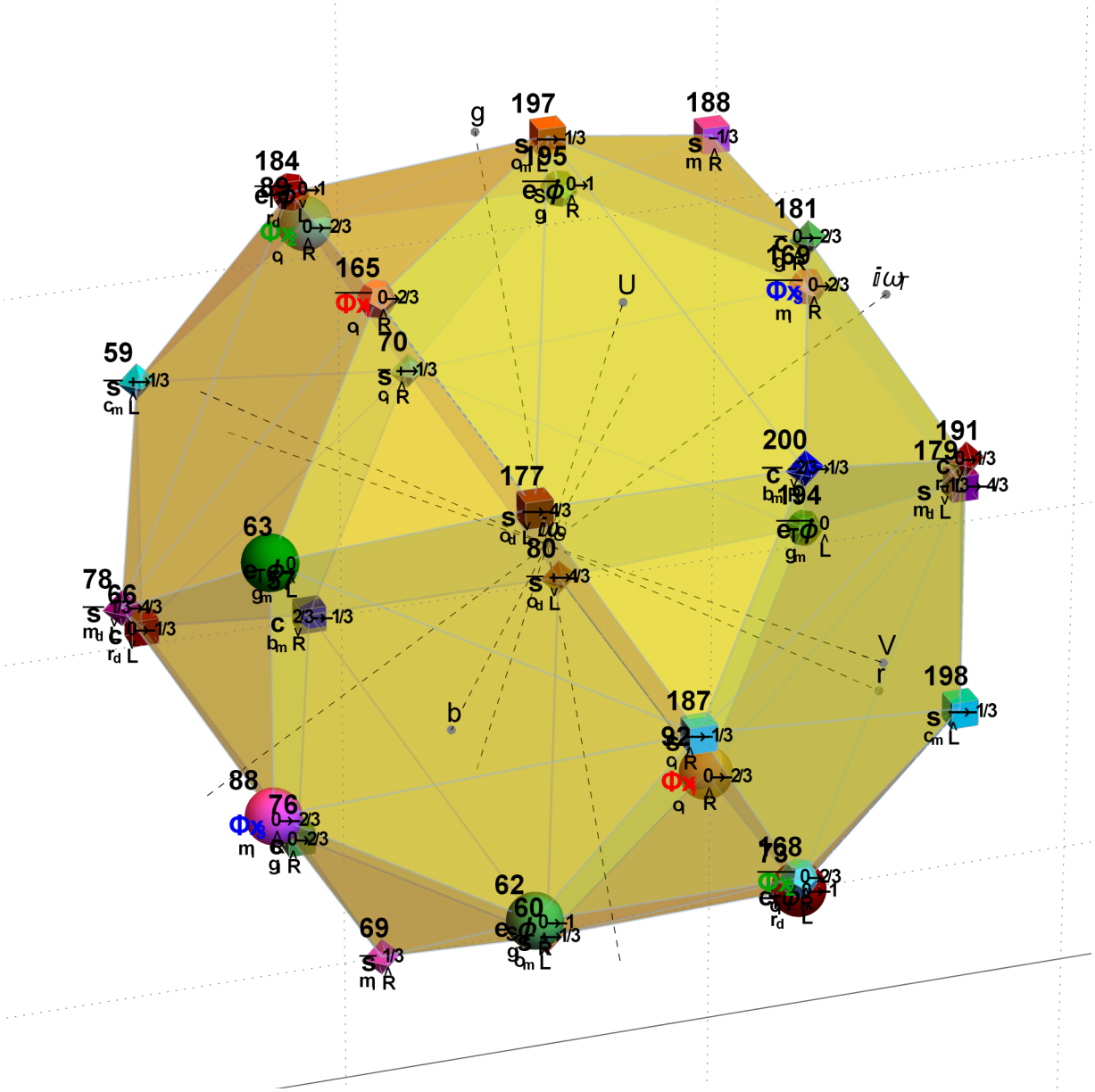
Seq #	Symbol	2D/3D Shape	Groups	Particle Quantum Bits	Binary / E8 / Physics Coordinates	Algebra Root Weight / Height / Rt#=Atomic Element Number -->	Ele #	Octonions
70	$\overline{s}_{c_l}^{\,+\to 1/3}\ \hat{R}$		{D8, D7, H4cell24, 4Icosadodeca, ring3, H4ring2, a7, a6}	0apggsscc 010100110_2	Bn{ 0 1 0 0 1 0 0 1 } E8{ 0 0 −1 0 0 1 0 } Ph{ 0 0 $-\frac{1}{\sqrt{2}}$ $-\frac{1}{\sqrt{2}}$ 0 $\frac{1}{\sqrt{3}}$ $\frac{1}{\sqrt{2}}$ $-\frac{1}{\sqrt{6}}$ }	Rt{ 0 0 0 −1 −1 −1 −1 0 } Wt{ 0 0 1 −1 0 0 −1 1 } Ht 4	Mn 25	Flipped Triad fpi=20 D_8 L fp_sm=1→61H {{1, 6, 2}, {1, 3, 4}, {1, 5, 7}, {2, 3, 7}, {2, 4, 5}, {3, 6, 5}, {4, 7, 6}} flat triad/mask bits {1, 2, 6, 3, 4, 5, 7} {1, 0, 0, 0, 0, 1, 1} Not Flipped Triad fpi=18 D_8 L fp_sm=6→68H {{1, 2, 5}, {1, 3, 7}, {1, 4, 6}, {2, 6, 4}, {3, 7, 4}, {5, 7, 6}} flat triad/mask bits {1, 2, 5, 3, 7, 4, 6} {0, 0, 0, 1, 0, 1, 1}
57	$c_{b_m}^{\,2/3\to -1/3}\ \check{R}$		{D8, E7(56), snubH4 24−1, 4Icosadodeca, ring5, H4ring3}	0apggsscc 001101111_2	Bn{ 1 0 0 0 0 1 0 1 } E8{ 0 −1 0 0 0 0 0 −1 } Ph{ 0 −1 0 0 0 $-\frac{1}{\sqrt{3}}$ 0 $-\sqrt{\frac{2}{3}}$ }	Rt{ 2 1 1 2 3 4 2 3 } Wt{ 1 1 −1 0 0 0 0 0 } Ht 18	Lr 103	Flipped Triad fpi=21 D_8 R fp_sm=6→3DH {{1, 6, 2}, {1, 3, 5}, {1, 7, 4}, {2, 4, 3}, {2, 7, 5}, {3, 7, 6}, {4, 5, 6}} flat triad/mask bits {1, 2, 6, 3, 5, 7, 4} {1, 0, 1, 1, 1, 1, 0} Not Flipped Triad fpi=22 D_8 R fp_sm=6→3DH {{1, 6, 2}, {1, 3, 5}, {1, 7, 4}, {2, 7, 5}, {2, 5, 4}, {3, 6, 4}, {5, 6, 7}} flat triad/mask bits {1, 6, 2, 3, 5, 7, 4} {0, 1, 1, 1, 1, 1, 0}
89	$\Phi x_2\ c_{c_l}^{\,0\to -2/3}\ \hat{R}$		{D8, E7(56), F4, snubH4 24−4, 4Icosadodeca, ring5, H4ring3}	0apggsscc 000000110_2	Bn{ 0 0 0 1 0 0 1 1 } E8{ 0 0 0 0 0 −1 0 −1 } Ph{ 0 0 0 0 0 $-\frac{2}{\sqrt{3}}$ $\frac{1}{\sqrt{2}}$ $-\frac{1}{\sqrt{6}}$ }	Rt{ 2 1 2 3 4 5 2 3 } Wt{ 1 0 0 0 0 1 −1 −1 } Ht 22	Cn 112	Flipped Triad fpi=3 D_8 L fp_sm=4→1DH {{1, 3, 2}, {1, 4, 6}, {1, 7, 5}, {2, 5, 4}, {2, 7, 6}, {3, 4, 7}, {3, 5, 6}} flat triad/mask bits {1, 2, 3, 4, 6, 7, 5} {1, 0, 1, 1, 1, 0, 0} Not Flipped Triad fpi=5 D_8 L fp_sm=7→14H {{1, 2, 3}, {1, 4, 7}, {1, 6, 5}, {2, 4, 6}, {2, 7, 6}, {3, 4, 6}, {3, 5, 7}} flat triad/mask bits {1, 2, 3, 4, 7, 6, 5} {0, 0, 1, 0, 1, 0, 0}
80	$\overline{s}_{o_d}^{\,+\to 4/3}\ \check{L}$		{D8, E7, D7, E6(27), D6, snubH4 24−3, 4Icosadodeca, ring2, H4ring1, a7, a6, a5}	0apggsscc 010100001_2	Bn{ 0 0 1 0 1 0 0 1 } E8{ 0 0 0 −1 0 1 0 0 } Ph{ 0 0 $\frac{1}{\sqrt{2}}$ $-\frac{1}{\sqrt{2}}$ 0 $\frac{1}{\sqrt{3}}$ $-\frac{1}{\sqrt{2}}$ $-\frac{1}{\sqrt{6}}$ }	Rt{ 0 0 0 0 −1 −1 0 0 } Wt{ 0 0 0 1 −1 −1 1 1 } Ht 2	Na 11	Flipped Triad fpi=19 D_8 L fp_sm=3→7DH {{1, 6, 2}, {1, 3, 4}, {1, 7, 5}, {2, 5, 3}, {2, 7, 4}, {3, 7, 6}, {4, 6, 5}} flat triad/mask bits {1, 2, 6, 3, 4, 7, 5} {1, 0, 1, 1, 1, 1, 1} Not Flipped Triad fpi=17 D_8 L fp_sm=8→74H {{1, 6, 2}, {1, 3, 7}, {1, 6, 4}, {2, 3, 5}, {2, 7, 6}, {3, 6, 5}, {4, 7, 5}} flat triad/mask bits {1, 2, 5, 3, 7, 6, 4} {0, 0, 1, 0, 1, 1, 1}
66	$c_{r_d}^{\,0\to -1/3}\ \check{L}$		{D8, E7, E7(56), D7, E6(27), D6, snubH4 24−4, 4Icosadodeca, ring6, H4ring4}	0apggsscc 001100001_2	Bn{ 0 1 0 1 0 0 1 0 } E8{ 0 0 −1 0 0 −1 0 0 } Ph{ 0 0 $-\frac{1}{\sqrt{2}}$ $-\frac{1}{\sqrt{2}}$ 0 $-\frac{1}{\sqrt{3}}$ $\frac{1}{\sqrt{2}}$ $\frac{1}{\sqrt{6}}$ }	Rt{ 0 0 0 −1 −1 −1 −1 −1 } Wt{ 1 0 1 −1 0 1 −1 −1 } Ht 5	Ga 31	Flipped Triad fpi=19 D_8 R fp_sm=3→05H {{1, 6, 2}, {1, 3, 4}, {1, 7, 5}, {2, 3, 5}, {2, 4, 7}, {3, 6, 7}, {4, 5, 6}} flat triad/mask bits {1, 2, 6, 3, 4, 7, 5} {1, 0, 1, 0, 0, 0, 0} Not Flipped Triad fpi=17 D_8 R fp_sm=8→0CH {{1, 2, 5}, {1, 3, 7}, {1, 6, 4}, {2, 4, 6}, {2, 6, 7}, {3, 5, 6}, {4, 5, 7}} flat triad/mask bits {1, 2, 5, 3, 7, 6, 4} {0, 0, 1, 1, 0, 0, 0}
59	$\overline{s}_{c_m}^{\,+\to 1/3}\ \hat{L}$		{D8, D7, snubH4 24−1, 4Icosadodeca, ring6, H4ring4, a7, a6}	0apggsscc 010101010_2	Bn{ 0 1 1 1 0 0 0 0 } E8{ 0 −1 0 0 0 0 1 0 } Ph{ 0 −1 0 0 0 $\frac{1}{\sqrt{3}}$ $\frac{1}{\sqrt{2}}$ $-\frac{1}{\sqrt{6}}$ }	Rt{ 0 0 −1 −1 −1 −1 −1 0 } Wt{ 0 1 −1 0 0 0 −1 1 } Ht 5	As 33	Flipped Triad fpi=20 D_8 L fp_sm=1→52H {{1, 2, 6}, {1, 4, 3}, {1, 5, 7}, {2, 3, 7}, {2, 5, 4}, {3, 5, 6}, {4, 7, 6}} flat triad/mask bits {1, 6, 2, 4, 3, 5, 7} {0, 1, 0, 0, 1, 0, 1} Not Flipped Triad fpi=18 D_8 L fp_sm=6→5BH {{1, 5, 2}, {1, 7, 3}, {1, 4, 6}, {2, 6, 4}, {3, 7, 4}, {5, 7, 6}} flat triad/mask bits {1, 5, 2, 7, 3, 4, 6} {1, 1, 0, 1, 1, 0, 1}
76	$c_{g_l}^{\,0\to 2/3}\ \hat{R}$		{D8, E7(56), D7, snubH4 24−3, 4Icosadodeca, ring6, H4ring2}	0apggsscc 001100110_2	Bn{ 0 0 1 1 0 0 1 0 } E8{ 0 0 0 −1 0 0 −1 0 } Ph{ 0 0 $\frac{1}{\sqrt{2}}$ $-\frac{1}{\sqrt{2}}$ 0 $-\frac{1}{\sqrt{3}}$ $-\frac{1}{\sqrt{2}}$ $\frac{1}{\sqrt{6}}$ }	Rt{ 0 0 0 0 −1 −1 0 −1 } Wt{ 1 0 0 1 −1 0 1 −1 } Ht 3	Cl 17	Flipped Triad fpi=20 D_8 R fp_sm=1→19H {{1, 6, 2}, {1, 3, 4}, {1, 5, 7}, {2, 7, 3}, {2, 5, 4}, {3, 5, 6}, {4, 6, 7}} flat triad/mask bits {1, 2, 6, 3, 4, 5, 7} {1, 0, 0, 1, 1, 0, 0} Not Flipped Triad fpi=18 D_8 R fp_sm=6→10H {{1, 2, 5}, {1, 3, 7}, {1, 4, 6}, {2, 3, 4}, {2, 7, 4}, {3, 4, 5}, {5, 6, 7}} flat triad/mask bits {1, 2, 5, 3, 7, 4, 6} {0, 0, 0, 0, 1, 0, 0}
92	$\Phi x_1\ o_{o_l}^{\,0\to -2/3}\ \hat{R}$		{D8, E7, E7(56), E6(27), F4, snubH4 24−1, snubH4 16−1, 4Icosadodeca, ring4, H4ring1}	0apggsscc 000000101_2	Bn{ 0 0 0 0 1 0 1 1 } E8{ 0 0 0 0 0 0 −1 −1 } Ph{ 0 0 0 0 0 $-\frac{2}{\sqrt{3}}$ $-\frac{1}{\sqrt{2}}$ $-\frac{1}{\sqrt{6}}$ }	Rt{ 2 1 2 3 4 5 3 3 } Wt{ 1 0 0 0 0 0 1 −1 } Ht 23	Fl 114	Flipped Triad fpi=1 D_8 L fp_sm=5→16H {{1, 2, 3}, {1, 5, 4}, {1, 7, 6}, {2, 4, 6}, {2, 7, 5}, {3, 4, 7}, {3, 5, 6}} flat triad/mask bits {1, 3, 2, 5, 4, 7, 6} {0, 1, 1, 0, 1, 0, 0} Not Flipped Triad fpi=2 D_8 L fp_sm=8→15H {{1, 3, 2}, {1, 4, 5}, {1, 7, 6}, {2, 4, 7}, {2, 6, 5}, {3, 4, 6}, {3, 5, 7}} flat triad/mask bits {1, 3, 2, 4, 5, 7, 6} {1, 0, 1, 0, 1, 0, 0}
78	$\overline{s}_{m_d}^{\,1/3\to 4/3}\ \check{L}$		{D8, H4cell24, 4Icosadodeca, ring4, H4ring3, a7}	0apggsscc 010100011_2	Bn{ 0 0 1 0 1 1 0 0 } E8{ 0 0 0 −1 0 0 0 1 } Ph{ 0 0 $\frac{1}{\sqrt{2}}$ $-\frac{1}{\sqrt{2}}$ 0 $\frac{1}{\sqrt{3}}$ 0 $\sqrt{\frac{2}{3}}$ }	Rt{ −2 −1 −2 −3 −5 −6 −3 −4 } Wt{ 0 0 0 1 −1 0 0 0 } Ht 26	Uus 117	Flipped Triad fpi=21 D_8 L fp_sm=6→76H {{1, 2, 6}, {1, 5, 3}, {1, 7, 4}, {2, 3, 4}, {2, 7, 5}, {3, 7, 6}, {4, 6, 5}} flat triad/mask bits {1, 6, 2, 5, 3, 7, 4} {0, 1, 1, 0, 1, 1, 1} Not Flipped Triad fpi=22 D_8 L fp_sm=6→76H {{1, 2, 6}, {1, 5, 3}, {1, 7, 4}, {2, 5, 4}, {3, 6, 4}, {5, 7, 6}} flat triad/mask bits {1, 2, 6, 5, 3, 7, 4} {0, 1, 1, 0, 1, 1, 1}
60	$\overline{s}_{o_m}^{\,+\to 1/3}\ \hat{L}$		{D8, E7, D7, E6(27), D6, H4cell24, 4Icosadodeca, ring5, H4ring1, a7, a6, a5}	0apggsscc 010101001_2	Bn{ 0 1 1 0 1 0 0 0 } E8{ 0 −1 0 0 0 1 0 0 } Ph{ 0 −1 0 0 0 $\frac{1}{\sqrt{3}}$ $-\frac{1}{\sqrt{2}}$ $-\frac{1}{\sqrt{6}}$ }	Rt{ 0 0 −1 −1 −1 −1 0 0 } Wt{ 0 1 −1 0 0 −1 1 1 } Ht 4	Fe 26	Flipped Triad fpi=19 D_8 L fp_sm=3→50H {{1, 2, 6}, {1, 3, 4}, {1, 5, 7}, {2, 3, 5}, {2, 7, 4}, {3, 6, 7}, {4, 6, 5}} flat triad/mask bits {1, 6, 2, 3, 4, 5, 7} {0, 0, 0, 0, 1, 0, 1} Not Flipped Triad fpi=17 D_8 L fp_sm=8→59H {{1, 5, 2}, {1, 3, 7}, {1, 4, 6}, {2, 4, 7}, {3, 6, 7}, {5, 6, 7}} flat triad/mask bits {1, 5, 2, 3, 7, 4, 6} {1, 0, 0, 1, 1, 0, 1}
69	$\overline{s}_{m_l}^{\,1/3}\ \hat{R}$		{D8, snubH4 24−4, snubH4 16−4, 4Icosadodeca, ring4, H4ring1, a7}	0apggsscc 010100111_2	Bn{ 0 1 0 0 1 0 1 0 } E8{ 0 0 −1 0 0 0 0 1 } Ph{ 0 0 $-\frac{1}{\sqrt{2}}$ $-\frac{1}{\sqrt{2}}$ 0 $\frac{1}{\sqrt{3}}$ 0 $\sqrt{\frac{2}{3}}$ }	Rt{ −2 −1 −2 −4 −5 −6 −3 −4 } Wt{ 0 0 1 −1 0 0 0 0 } Ht 27	Uuo 118	Flipped Triad fpi=21 D_8 L fp_sm=6→68H {{1, 2, 6}, {1, 3, 5}, {1, 4, 7}, {2, 4, 3}, {2, 7, 5}, {3, 7, 6}, {4, 6, 5}} flat triad/mask bits {1, 6, 2, 3, 5, 4, 7} {0, 0, 0, 1, 0, 1, 1} Not Flipped Triad fpi=22 D_8 L fp_sm=6→68H {{1, 2, 6}, {1, 3, 5}, {1, 4, 7}, {2, 4, 5}, {3, 6, 4}, {5, 7, 6}} flat triad/mask bits {1, 2, 6, 3, 5, 4, 7} {0, 0, 0, 1, 0, 1, 1}
72	[illegible]		{D8, E7, D7, E6, D6, E5, D5, E4, D4, D4Dual, F4, [illegible]}	0apggsscc	Bn{ 0 1 0 0 0 0 1 1 } E8{ 0 0 −1 1 0 0 0 0 } Rt{ 0 0 0 −1 0 0 0 0 } Wt{ 0 0 1 −2 1 0 0 0 }	B	Flipped Triad fpi=2 D_8 R fp_sm=8→0CH {{1, 2, 3}, {1, 4, 5}, {1, 7, 6}, {2, 7, 4}, {2, 5, 6}, {3, 4, 6}, {3, 5, 7}} Not Flipped Triad fpi=1 D_8 R fp_sm=5→0FH {{1, 3, 2}, {1, 5, 4}, {1, 7, 6}, {2, 6, 4}, {2, 5, 7}, {3, 4, 7}, {3, 5, 6}}

Out[2275]=

73	$\underset{r_d}{e_T\psi}\ \overset{\vee}{L}$			snubH4 24−2, 4Icosadodeca, ring6, H4ring2, a7, a6, a5, a4, a3}	001000001$_2$	Ph{ 0 0 $-\sqrt{2}$ 0 0 0 0 0 }	Wt{ 0 0 1 −2 1 0 0 0 } Ht 1	5	flat triad/mask bits {1, 3, 2, 4, 5, 7, 6} {0, 0, 1, 1, 0, 0, 0}	flat triad/mask bits {1, 3, 2, 5, 4, 7, 6} {1, 1, 1, 1, 0, 0, 0}
88	$\underset{m_l}{\Phi x_3}\ \overset{0\to-2/3}{\hat{R}}$			{D8, E7(56), D7, F4, snubH4 24−3, snubH4 16−3, 4Icosadodeca, ring1, H4ring1}	0apggsscc 000000111$_2$	Bn{ 0 0 0 1 0 1 0 1 } E8{ 0 0 0 0 0 −1 −1 0 } Ph{ 0 0 0 0 0 $-\frac{2}{\sqrt{3}}$ 0 $\sqrt{\frac{2}{3}}$ }	Rt{ 0 0 0 0 0 0 0 −1 } Wt{ 1 0 0 0 0 1 0 −2 } Ht 1	$\overline{\mathrm{H}}$ 1	Flipped Triad fpi=6 D_8 L fp_sm=6→17H {1, 3, 2}, {1, 7, 4}, {1, 6, 5}, {2, 4, 6}, {2, 7, 5}, {3, 4, 5}, {3, 6, 7}} flat triad/mask bits {1, 2, 3, 7, 4, 6, 5} {1, 1, 1, 0, 1, 0, 0}	Not Flipped Triad fpi=9 D_8 L fp_sm=6→17H {1, 4, 2}, {1, 6, 3}, {1, 7, 5}, {2, 3, {2, 7, 6}, {3, 4, 7}, {4, 5, 6}} flat triad/mask bits {1, 4, 2, 6, 3, 7, 5} {1, 1, 1, 0, 1, 0, 0}
63	$\underset{g_m}{e_T\phi}\ \overset{0}{\hat{L}}$			{D8, E7, D7, E6, D6, E5, D5, E4, D4, D4Dual, F4, snubH4 24−2, snubH4 16−2, D3, 4Icosadodeca, ring1, H4ring1, a7, a6, a5, a4, a3}	0apggsscc 001001010$_2$	Bn{ 0 1 1 0 0 0 0 1 } E8{ 0 −1 1 0 0 0 0 0 } Ph{ 0 −1 $\frac{1}{\sqrt{2}}$ $\frac{1}{\sqrt{2}}$ 0 0 0 0 }	Rt{ 0 0 −1 0 0 0 0 0 } Wt{ 0 1 −2 1 0 0 0 0 } Ht 1	$\overline{\mathrm{C}}$ 6	Flipped Triad fpi=5 D_8 R fp_sm=7→20H {1, 2, 3}, {1, 4, 7}, {1, 5, 6}, {2, 4, 5}, {2, 6, 7}, {3, 6, 4}, {3, 5, 7}} flat triad/mask bits {1, 3, 2, 4, 7, 5, 6} {0, 0, 0, 0, 0, 1, 0}	Not Flipped Triad fpi=3 D_8 R fp_sm=4→29H {1, 3, 2}, {1, 4, 6}, {1, 5, 7}, {2, 5, {2, 6, 7}, {3, 7, 4}, {3, 5, 6}} flat triad/mask bits {1, 3, 2, 4, 6, 5, 7} {1, 0, 0, 1, 0, 1, 0}
62	$\underset{g_l}{e_S\phi}\ \overset{0\to-1}{\hat{R}}$			{D8, E7, D7, E6, D6, E5, D5, E4, D4, D4Dual, F4, snubH4 24−2, 4Icosadodeca, ring2, H4ring1, a7, a6, a5, a4, a3}	0apggsscc 001000110$_2$	Bn{ 0 1 1 0 0 0 1 0 } E8{ 0 −1 0 1 0 0 0 0 } Ph{ 0 −1 $-\frac{1}{\sqrt{2}}$ $\frac{1}{\sqrt{2}}$ 0 0 0 0 }	Rt{ 0 0 −1 −1 0 0 0 0 } Wt{ 0 1 −1 −1 1 0 0 0 } Ht 2	$\overline{\mathrm{Al}}$ 13	Flipped Triad fpi=5 D_8 R fp_sm=7→13H {1, 3, 2}, {1, 7, 4}, {1, 5, 6}, {2, 4, 5}, {2, 7, 6}, {3, 4, 6}, {3, 5, 7}} flat triad/mask bits {1, 2, 3, 7, 4, 5, 6} {1, 1, 0, 0, 1, 0, 0}	Not Flipped Triad fpi=3 D_8 R fp_sm=4→1AH {1, 2, 3}, {1, 6, 4}, {1, 5, 7}, {2, 5, {2, 7, 6}, {3, 4, 7}, {3, 5, 6}} flat triad/mask bits {1, 2, 3, 6, 4, 5, 7} {0, 1, 0, 1, 1, 0, 0}
187	$\underset{c_l}{s}\ \overset{-\to-1/3}{\hat{R}}$			{D8, D7, H4cell24, 4Icosadodeca, ring3, H4ring2, a7, a6}	0apggsscc 000100110$_2$	Bn{ 1 0 1 1 0 1 1 0 } E8{ 0 0 1 0 0 0 −1 0 } Ph{ 0 0 $\frac{1}{\sqrt{2}}$ $\frac{1}{\sqrt{2}}$ 0 $-\frac{1}{\sqrt{3}}$ $-\frac{1}{\sqrt{2}}$ $\frac{1}{\sqrt{6}}$ }	Rt{ 0 0 0 1 1 1 1 0 } Wt{ 0 0 −1 1 0 0 1 −1 } Ht 4	Mn 25	Flipped Triad fpi=18 D_8 L fp_sm=6→17H {1, 5, 2}, {1, 7, 3}, {1, 6, 4}, {2, 3, 6}, {2, 7, 4}, {3, 4, 5}, {5, 6, 7}} flat triad/mask bits {1, 2, 5, 7, 3, 6, 4} {1, 1, 1, 0, 1, 0, 0}	Not Flipped Triad fpi=20 D_8 L fp_sm=1→1EH {1, 2, 6}, {1, 4, 3}, {1, 7, 5}, {2, 7, {2, 5, 4}, {3, 5, 6}, {4, 6, 7}} flat triad/mask bits {1, 2, 6, 4, 3, 7, 5} {0, 1, 1, 1, 1, 0, 0}
200	$\underset{b_m}{\overline{c}}\ \overset{-2/3\to1/3}{\overset{\vee}{R}}$			{D8, E7(56), snubH4 24−1, 4Icosadodeca, ring5, H4ring3}	0apggsscc 011101111$_2$	Bn{ 0 1 1 1 1 0 1 0 } E8{ 0 1 0 0 0 0 0 1 } Ph{ 0 1 0 0 0 $\frac{1}{\sqrt{3}}$ 0 $\sqrt{\frac{2}{3}}$ }	Rt{ −2 −1 −1 −2 −3 −4 −2 −3 } Wt{ −1 −1 1 0 0 0 0 0 } Ht 18	$\overline{\mathrm{Lr}}$ 103	Flipped Triad fpi=22 D_8 R fp_sm=6→42H {1, 2, 6}, {1, 5, 3}, {1, 4, 7}, {2, 3, 7}, {2, 4, 5}, {3, 4, 6}, {5, 7, 6}} flat triad/mask bits {1, 6, 2, 5, 3, 4, 7} {0, 1, 0, 0, 0, 0, 1}	Not Flipped Triad fpi=21 D_8 R fp_sm=6→42H {1, 2, 6}, {1, 5, 3}, {1, 4, 7}, {2, 3, {2, 5, 7}, {3, 6, 7}, {4, 6, 5}} flat triad/mask bits {1, 2, 6, 5, 3, 4, 7} {0, 1, 0, 0, 0, 0, 1}
168	$\underset{c_l}{\overline{\Phi x_2}}\ \overset{0\to2/3}{\hat{R}}$			{D8, E7(56), F4, snubH4 24−4, 4Icosadodeca, ring5, H4ring3}	0apggsscc 010000110$_2$	Bn{ 1 1 1 0 1 1 0 0 } E8{ 0 0 0 0 0 1 0 1 } Ph{ 0 0 0 0 0 $\frac{2}{\sqrt{3}}$ $-\frac{1}{\sqrt{2}}$ $\frac{1}{\sqrt{6}}$ }	Rt{ −2 −1 −2 −3 −4 −5 −2 −3 } Wt{ −1 0 0 0 0 −1 1 1 } Ht 22	$\overline{\mathrm{Cn}}$ 112	Flipped Triad fpi=5 D_8 L fp_sm=7→6BH {1, 3, 2}, {1, 7, 4}, {1, 5, 6}, {2, 5, 4}, {2, 6, 7}, {3, 6, 4}, {3, 7, 5}} flat triad/mask bits {1, 2, 3, 7, 4, 5, 6} {1, 1, 0, 1, 0, 1, 1}	Not Flipped Triad fpi=3 D_8 L fp_sm=4→62H {1, 2, 3}, {1, 6, 4}, {1, 5, 7}, {2, 4, {2, 6, 7}, {3, 7, 4}, {3, 6, 5}} flat triad/mask bits {1, 2, 3, 6, 4, 5, 7} {0, 1, 0, 0, 0, 1, 1}
177	$\underset{o_d}{s}\ \overset{-\to-4/3}{\overset{\vee}{L}}$			{D8, E7, D7, D6, snubH4 24−3, 4Icosadodeca, ring2, H4ring1, a7, a6, a5}	0apggsscc 000100001$_2$	Bn{ 1 1 0 1 0 1 1 0 } E8{ 0 0 0 1 0 −1 0 0 } Ph{ 0 0 $-\frac{1}{\sqrt{2}}$ $\frac{1}{\sqrt{2}}$ 0 $-\frac{1}{\sqrt{3}}$ $\frac{1}{\sqrt{2}}$ $\frac{1}{\sqrt{6}}$ }	Rt{ 0 0 0 0 1 1 0 0 } Wt{ 0 0 0 −1 1 1 −1 −1 } Ht 2	Na 11	Flipped Triad fpi=17 D_8 L fp_sm=8→0BH {1, 5, 2}, {1, 7, 3}, {1, 4, 6}, {2, 4, 3}, {2, 6, 7}, {3, 5, 6}, {4, 5, 7}} flat triad/mask bits {1, 2, 5, 7, 3, 4, 6} {1, 1, 0, 1, 0, 0, 0}	Not Flipped Triad fpi=19 D_8 L fp_sm=3→02H {1, 2, 6}, {1, 4, 3}, {1, 5, 7}, {2, 3, {2, 4, 7}, {3, 6, 7}, {4, 5, 6}} flat triad/mask bits {1, 2, 6, 4, 3, 5, 7} {0, 1, 0, 0, 0, 0, 0}
191	$\underset{r_d}{\overline{c}}\ \overset{0\to1/3}{\overset{\vee}{L}}$			{D8, E7, E7(56), D7, D6, snubH4 24−4, 4Icosadodeca, ring6, H4ring4}	0apggsscc 011100001$_2$	Bn{ 1 0 1 0 1 1 0 1 } E8{ 0 0 1 0 0 1 0 0 } Ph{ 0 0 $\frac{1}{\sqrt{2}}$ $\frac{1}{\sqrt{2}}$ 0 $\frac{1}{\sqrt{3}}$ $-\frac{1}{\sqrt{2}}$ $-\frac{1}{\sqrt{6}}$ }	Rt{ 0 0 0 1 1 1 1 1 } Wt{ −1 0 −1 1 0 −1 1 1 } Ht 5	Ga 31	Flipped Triad fpi=17 D_8 R fp_sm=8→73H {1, 5, 2}, {1, 7, 3}, {1, 4, 6}, {2, 3, 4}, {2, 7, 6}, {3, 6, 5}, {4, 7, 5}} flat triad/mask bits {1, 2, 5, 7, 3, 4, 6} {1, 1, 0, 0, 1, 1, 1}	Not Flipped Triad fpi=19 D_8 R fp_sm=3→7AH {1, 2, 6}, {1, 4, 3}, {1, 5, 7}, {2, 5, {2, 7, 4}, {3, 7, 6}, {4, 6, 5}} flat triad/mask bits {1, 2, 6, 4, 3, 5, 7} {0, 1, 0, 1, 1, 1, 1}
198	$\underset{c_m}{s}\ \overset{-\to-1/3}{\hat{L}}$			{D8, D7, snubH4 24−1, 4Icosadodeca, ring6, H4ring4, a7, a6}	0apggsscc 000101010$_2$	Bn{ 1 0 0 0 1 1 1 1 } E8{ 0 1 0 0 0 0 −1 0 } Ph{ 0 1 0 0 0 $-\frac{1}{\sqrt{3}}$ $-\frac{1}{\sqrt{2}}$ $\frac{1}{\sqrt{6}}$ }	Rt{ 0 0 1 1 1 1 1 0 } Wt{ 0 −1 1 0 0 0 1 −1 } Ht 5	As 33	Flipped Triad fpi=18 D_8 L fp_sm=6→24H {1, 2, 5}, {1, 3, 7}, {1, 6, 4}, {2, 3, 6}, {2, 4, 7}, {3, 5, 4}, {5, 6, 7}} flat triad/mask bits {1, 5, 2, 3, 7, 6, 4} {0, 0, 1, 0, 0, 1, 0}	Not Flipped Triad fpi=20 D_8 L fp_sm=1→2DH {1, 6, 2}, {1, 3, 4}, {1, 7, 5}, {2, 7, {2, 4, 5}, {3, 6, 5}, {4, 6, 7}} flat triad/mask bits {1, 6, 2, 3, 4, 7, 5} {1, 0, 1, 1, 0, 1, 0}
181	$\underset{g_l}{\overline{c}}\ \overset{0\to-2/3}{\hat{R}}$			{D8, E7(56), D7, snubH4 24−3, 4Icosadodeca, ring6, H4ring2}	0apggsscc 011100110$_2$	Bn{ 1 1 0 0 1 1 0 1 } E8{ 0 0 0 1 0 0 1 0 } Ph{ 0 0 $-\frac{1}{\sqrt{2}}$ $\frac{1}{\sqrt{2}}$ 0 $\frac{1}{\sqrt{3}}$ $\frac{1}{\sqrt{2}}$ $-\frac{1}{\sqrt{6}}$ }	Rt{ 0 0 0 0 1 1 0 1 } Wt{ −1 0 0 −1 1 0 −1 1 } Ht 3	Cl 17	Flipped Triad fpi=18 D_8 R fp_sm=6→6FH {1, 5, 2}, {1, 7, 3}, {1, 6, 4}, {2, 6, 3}, {2, 4, 7}, {3, 5, 4}, {5, 7, 6}} flat triad/mask bits {1, 2, 5, 7, 3, 6, 4} {1, 1, 1, 1, 0, 1, 1}	Not Flipped Triad fpi=20 D_8 R fp_sm=1→66H {1, 2, 6}, {1, 4, 3}, {1, 7, 5}, {2, 3, {2, 4, 5}, {3, 6, 5}, {4, 7, 6}} flat triad/mask bits {1, 2, 6, 4, 3, 7, 5} {0, 1, 1, 0, 0, 1, 1}
165	$\underset{o_l}{\overline{\Phi x_1}}\ \overset{0\to2/3}{\hat{R}}$			{D8, E7, E7(56), F4, snubH4 24−1, snubH4 16−1, 4Icosadodeca, ring4, H4ring1}	0apggsscc 010000101$_2$	Bn{ 1 1 1 1 0 1 0 0 } E8{ 0 0 0 0 0 0 1 1 } Ph{ 0 0 0 0 0 $\frac{2}{\sqrt{3}}$ $\frac{1}{\sqrt{2}}$ $\frac{1}{\sqrt{6}}$ }	Rt{ −2 −1 −2 −3 −4 −5 −3 −3 } Wt{ −1 0 0 0 0 0 −1 1 } Ht 23	$\overline{\mathrm{Fl}}$ 114	Flipped Triad fpi=2 D_8 L fp_sm=8→6AH {1, 2, 3}, {1, 5, 4}, {1, 6, 7}, {2, 7, 4}, {2, 5, 6}, {3, 6, 4}, {3, 7, 5}} flat triad/mask bits {1, 3, 2, 5, 4, 6, 7} {0, 1, 0, 1, 0, 1, 1}	Not Flipped Triad fpi=1 D_8 L fp_sm=5→69H {1, 3, 2}, {1, 4, 5}, {1, 6, 7}, {2, 6, {2, 5, 7}, {3, 7, 4}, {3, 6, 5}} flat triad/mask bits {1, 3, 2, 4, 5, 6, 7} {1, 0, 0, 1, 0, 1, 1}
179	$\underset{m_d}{s}\ \overset{-1/3\to-4/3}{\overset{\vee}{L}}$			{D8, H4cell24, 4Icosadodeca, ring4, H4ring3, a7}	0apggsscc 000100011$_2$	Bn{ 1 1 0 1 0 0 1 1 } E8{ 0 0 0 1 0 0 0 −1 } Ph{ 0 0 $-\frac{1}{\sqrt{2}}$ $\frac{1}{\sqrt{2}}$ 0 $-\frac{1}{\sqrt{3}}$ 0 $-\sqrt{\frac{2}{3}}$ }	Rt{ 2 1 2 3 5 6 3 4 } Wt{ 0 0 0 −1 1 0 0 0 } Ht 26	Uus 117	Flipped Triad fpi=22 D_8 L fp_sm=6→09H {1, 6, 2}, {1, 3, 5}, {1, 4, 7}, {2, 7, 3}, {2, 4, 5}, {3, 4, 6}, {5, 6, 7}} flat triad/mask bits	Not Flipped Triad fpi=21 D_8 L fp_sm=6→09H {1, 6, 2}, {1, 3, 5}, {1, 4, 7}, {2, 4, {2, 5, 7}, {3, 6, 7}, {4, 5, 6}} flat triad/mask bits

																												{1, 2, 6, 3, 5, 4, 7} {1, 0, 0, 1, 0, 0, 0} Flipped Triad fpi=17 D_8 L fp_sm=8→26H {{1, 2, 5}, {1, 7, 3}, {1, 6, 4}, {2, 3, 4}, {2, 6, 7}, {3, 6, 5}, {4, 5, 7}} flat triad/mask bits {1, 5, 2, 7, 3, 6, 4} {0, 1, 1, 0, 0, 1, 0}	{1, 6, 2, 3, 5, 4, 7} {1, 0, 0, 1, 0, 0, 0} Not Flipped Triad fpi=19 D_8 L fp_sm=3→2FH {{1, 6, 2}, {1, 4, 3}, {1, 7, 5}, {2, 4, 7}, {3, 7, 6}, {4, 5, 6}} flat triad/mask bits {1, 6, 2, 4, 3, 7, 5} {1, 1, 1, 1, 0, 1, 0}
197	$\overset{s}{{}^{o}m}\ \overset{\to\to 1/3}{\hat{L}}$			{D8, E7, D7, D6, H4cell24, 4Icosadodeca, ring5, H4ring1, a7, a6, a5}	$0apggsscc$ 000101001_2	Bn{ E8{ Ph{	1 0 0	0 1 1	0 0 0	1 0 0	0 0 0	1 −1 $-\frac{1}{\sqrt{3}}$	1 0 $\frac{1}{\sqrt{2}}$	1 0 $\frac{1}{\sqrt{6}}$	} } }	Rt{ Wt{ Ht	0 0 4	0 −1	1 1	1 0	1 0	1 1	0 −1	0 −1	}	Fe 26		
188	$\overset{s}{m_l}\ \overset{-1/3}{\hat{R}}$			{D8, snubH4 24−4, snubH4 16−4, 4Icosadodeca, ring4, H4ring1, a7}	$0apggsscc$ 000100111_2	Bn{ E8{ Ph{	1 0 0	0 0 0	1 1 $\frac{1}{\sqrt{2}}$	1 0 $\frac{1}{\sqrt{2}}$	0 0 0	1 0 $-\frac{1}{\sqrt{3}}$	0 0 0	1 −1 $-\sqrt{\frac{2}{3}}$	} } }	Rt{ Wt{ Ht	2 0 27	1 0	2 −1	4 1	5 0	6 0	3 0	4 0	}	Uuo 118	Flipped Triad fpi=22 D_8 L fp_sm=6→17H {{1, 6, 2}, {1, 5, 3}, {1, 7, 4}, {2, 3, 7}, {2, 5, 4}, {3, 4, 6}, {5, 6, 7}} flat triad/mask bits {1, 2, 6, 5, 3, 7, 4} {1, 1, 1, 0, 1, 0, 0}	Not Flipped Triad fpi=21 D_8 L fp_sm=6→17H {{1, 6, 2}, {1, 5, 3}, {1, 7, 4}, {2, 3, 7, 5}, {3, 6, 7}, {4, 5, 6}} flat triad/mask bits {1, 6, 2, 5, 3, 7, 4} {1, 1, 1, 0, 1, 0, 0}
184	$\overline{e_T\phi}\ \overset{0\to 1}{\underset{r_d}{\vee}}\ \hat{L}$			{D8, E7, D7, E6, D6, E5, D5, E4, D4, D4Dual, F4, snubH4 24−2, 4Icosadodeca, ring6, H4ring2, a7, a6, a5, a4, a3}	$0apggsscc$ 011000001_2	Bn{ E8{ Ph{	1 0 0	0 0 0	1 1 $\sqrt{2}$	1 −1 0	1 0 0	1 0 0	0 0 0	0 0 0	} } }	Rt{ Wt{ Ht	0 0 1	0 0	0 −1	1 2	0 −1	0 0	0 0	0 0	}	B 5	Flipped Triad fpi=1 D_8 R fp_sm=5→70H {{1, 2, 3}, {1, 4, 5}, {1, 6, 7}, {2, 4, 6}, {2, 7, 5}, {3, 7, 4}, {3, 6, 5}} flat triad/mask bits {1, 3, 2, 4, 5, 6, 7} {0, 0, 0, 0, 1, 1, 1}	Not Flipped Triad fpi=2 D_8 R fp_sm=8→73H {{1, 3, 2}, {1, 5, 4}, {1, 6, 7}, {2, 4, 6}, {2, 6, 5}, {3, 6, 4}, {3, 7, 5}} flat triad/mask bits {1, 3, 2, 5, 4, 6, 7} {1, 1, 0, 0, 1, 1, 1}
169	$\overline{\Phi x_3}\ \overset{0\to 2/3}{m_l}\ \hat{R}$			{D8, E7(56), D7, F4, snubH4 24−3, snubH4 16−3, 4Icosadodeca, ring1, H4ring1}	$0apggsscc$ 010000111_2	Bn{ E8{ Ph{	1 0 0	1 0 0	1 0 0	0 0 0	1 0 0	0 1 $\frac{2}{\sqrt{3}}$	1 1 0	0 0 $-\sqrt{\frac{2}{3}}$	} } }	Rt{ Wt{ Ht	0 −1 1	0 0	0 0	0 0	0 0	0 −1	0 0	1 2	}	H 1	Flipped Triad fpi=9 D_8 L fp_sm=6→68H {{1, 2, 4}, {1, 3, 6}, {1, 5, 7}, {2, 5, 3}, {2, 6, 7}, {3, 7, 4}, {4, 6, 5}} flat triad/mask bits {1, 4, 2, 3, 6, 5, 7} {0, 0, 0, 1, 0, 1, 1}	Not Flipped Triad fpi=6 D_8 L fp_sm=6→68H {{1, 2, 3}, {1, 4, 7}, {1, 5, 6}, {2, 6, 7}, {2, 5, 4}, {3, 5, 4}, {3, 7, 6}} flat triad/mask bits {1, 2, 3, 4, 7, 5, 6} {0, 0, 0, 1, 0, 1, 1}
194	$\overline{e_T\phi}\ \overset{0}{\underset{\varepsilon m}{}}\ \hat{L}$			{D8, E7, D7, E6, D6, E5, D5, E4, D4, D4Dual, F4, snubH4 24−2, snubH4 16−2, D3, 4Icosadodeca, ring1, H4ring1, a7, a6, a5, a4, a3}	$0apggsscc$ 011001010_2	Bn{ E8{ Ph{	1 0 0	0 1 1	0 −1 $-\frac{1}{\sqrt{2}}$	1 0 $-\frac{1}{\sqrt{2}}$	1 0 0	1 0 0	1 0 0	0 0 0	} } }	Rt{ Wt{ Ht	0 0 1	0 −1	1 2	0 −1	0 0	0 0	0 0	0 0	}	C 6	Flipped Triad fpi=3 D_8 R fp_sm=4→56H {{1, 2, 3}, {1, 6, 4}, {1, 7, 5}, {2, 4, 5}, {2, 7, 6}, {3, 4, 7}, {3, 6, 5}} flat triad/mask bits {1, 3, 2, 6, 4, 7, 5} {0, 1, 1, 0, 1, 0, 1}	Not Flipped Triad fpi=5 D_8 R fp_sm=7→5FH {{1, 3, 2}, {1, 7, 4}, {1, 6, 5}, {2, 5, 7}, {2, 7, 6}, {3, 4, 6}, {3, 7, 5}} flat triad/mask bits {1, 3, 2, 7, 4, 6, 5} {1, 1, 1, 1, 1, 0, 1}
195	$\overline{e_S\phi}\ \overset{0\to 1}{g_l}\ \hat{R}$			{D8, E7, D7, E6, D6, E5, D5, E4, D4, D4Dual, F4, snubH4 24−2, 4Icosadodeca, ring2, H4ring1, a7, a6, a5, a4, a3}	$0apggsscc$ 011000110_2	Bn{ E8{ Ph{	1 0 0	0 1 1	0 0 $\frac{1}{\sqrt{2}}$	1 −1 $-\frac{1}{\sqrt{2}}$	1 0 0	1 0 0	0 0 0	1 0 0	} } }	Rt{ Wt{ Ht	0 0 2	0 −1	1 1	1 1	0 −1	0 0	0 0	0 0	}	Al 13	Flipped Triad fpi=3 D_8 R fp_sm=4→65H {{1, 3, 2}, {1, 4, 6}, {1, 7, 5}, {2, 4, 5}, {2, 6, 7}, {3, 7, 4}, {3, 6, 5}} flat triad/mask bits {1, 2, 3, 4, 6, 7, 5} {1, 0, 1, 0, 0, 1, 1}	Not Flipped Triad fpi=5 D_8 R fp_sm=7→6CH {{1, 2, 3}, {1, 4, 7}, {1, 6, 5}, {2, 5, 7}, {2, 6, 7}, {3, 6, 4}, {3, 7, 5}} flat triad/mask bits {1, 2, 3, 4, 7, 6, 5} {0, 0, 1, 1, 0, 1, 1}


g
197
188
184
195
181
165
U
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70
200
191
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177
194
63
80
78
66
V
198
b
187
88
76
168
62
60
69

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dispRows@# & /@ e8hulls[[6]] // ColumnForm
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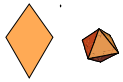
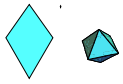
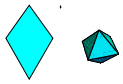
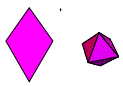
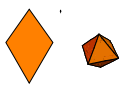
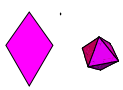
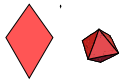
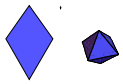
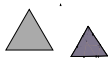
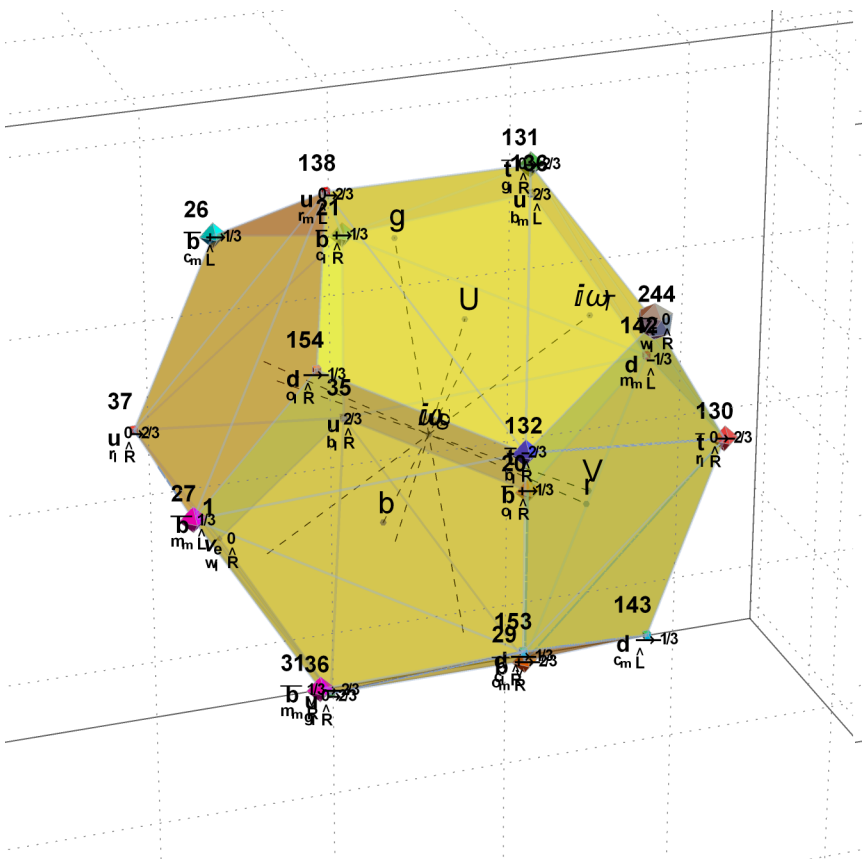
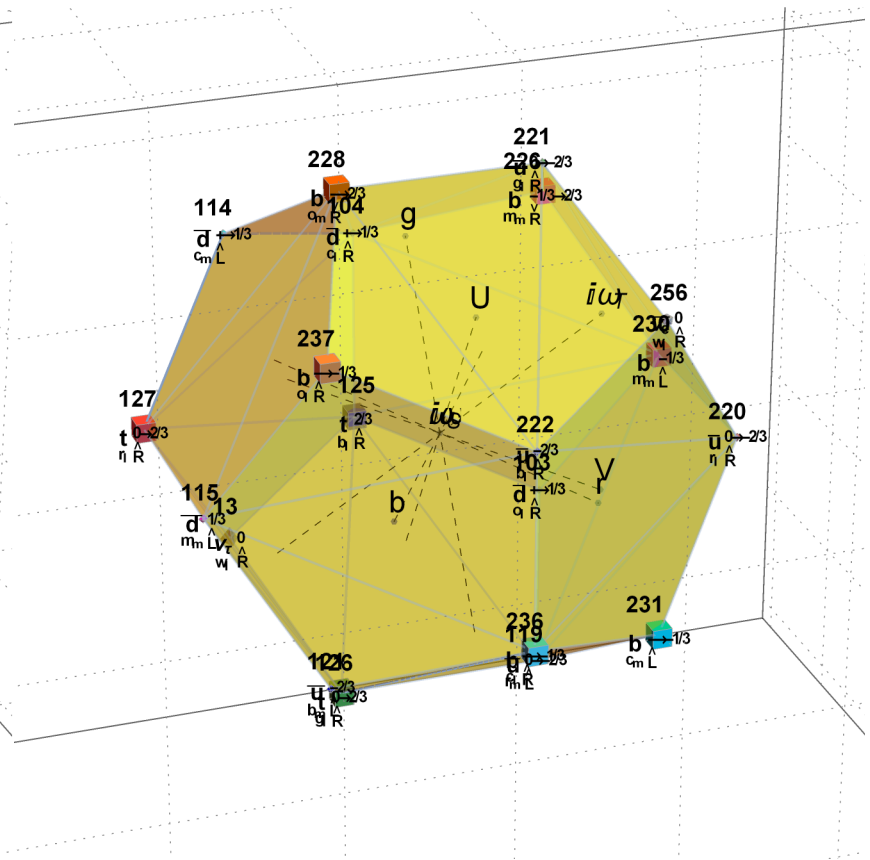
Seq #	Symbol	2D/3D Shape	Groups	Particle Quantum Bits	Binary / E8 / Physics Coordinates	Algebra Root Weight / Height / Rt#=Atomic Element Number -->	Ele #	Octonions
1	$v_e\ {}^{0}_{w_l}\ \hat{R}$		{BC8, E7, E6, 6Cube, E5, C4, H4Φcell24, H4Φcell8, 3Cube, B2=C2, Hamming, Idempot, 5Dodecaa, ring7, H4Φring4}	$0apggsscc_{001010100_2}$	Bn{ 0 0 0 0 0 0 0 0 } E8{ $-\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ } Ph{ $-\frac{1}{2}$ $-\frac{1}{2}$ 0 $-\frac{1}{\sqrt{2}}$ $-\frac{1}{2}$ $-\frac{\sqrt{3}}{2}$ 0 0 }	Rt{ 1 0 0 0 0 0 0 0 } Wt{ 2 0 0 0 0 0 0 −1 } Ht 1	O 8	Flipped Triad fpi=7 BC_8 R fp_sm=3→1BH {{1, 4, 2}, {1, 5, 3}, {1, 6, 7}, {2, 6, 3}}{{1, 3, 2}, {1, 6, 4}, {1, 5, 7}, {2, 7, 4 {2, 7, 5}, {3, 4, 7}, {4, 5, 6}} flat triad/mask bits {1, 2, 4, 5, 3, 6, 7} {1, 1, 0, 1, 1, 0, 0} Not Flipped Triad fpi=4 BC_8 R fp_sm=3→1BH {{1, 3, 2}, {1, 6, 4}, {1, 5, 7}, {2, 7, 4 {2, 6, 5}, {3, 4, 5}, {3, 6, 7}} flat triad/mask bits {1, 3, 2, 6, 4, 5, 7} {1, 1, 0, 1, 1, 0, 0}
20	$\overline{b}\ {}^{+\to 1/3}_{c_l}\ \hat{R}$		{BC8, E7, E6(27), 6Cube, C4, H4Φcell24, H4Φcell8, 5Dodecaa, ring2, H4Φring2}	$0apggsscc_{010110101_2}$	Bn{ 0 1 0 0 0 1 0 0 } E8{ $-\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ } Ph{ $-\frac{1}{2}$ $\frac{1}{2}$ 0 $-\frac{1}{\sqrt{2}}$ $-\frac{1}{2}$ $-\frac{1}{2\sqrt{3}}$ $-\frac{1}{\sqrt{2}}$ $-\frac{1}{\sqrt{6}}$ }	Rt{ 1 0 1 1 1 1 1 1 } Wt{ 1 −1 1 0 0 −1 1 0 } Ht 7	In 49	Flipped Triad fpi=26 BC_8 L fp_sm=8→6AH {{1, 2, 7}, {1, 4, 3}, {1, 5, 6}, {2, 6, 3}}{{1, 7, 2}, {1, 3, 4}, {1, 5, 6}, {2, 5, 3 {2, 4, 5}, {3, 7, 5}, {4, 7, 6}} flat triad/mask bits {1, 7, 2, 4, 3, 5, 6} {0, 1, 0, 1, 0, 1, 1} Not Flipped Triad fpi=25 BC_8 L fp_sm=5→69H {{1, 7, 2}, {1, 3, 4}, {1, 5, 6}, {2, 5, 3 {2, 4, 6}, {3, 7, 6}, {4, 7, 5}} flat triad/mask bits {1, 7, 2, 3, 4, 5, 6} {1, 0, 0, 1, 0, 1, 1}
21	$\overline{b}\ {}^{+\to 1/3}_{c_l}\ \hat{R}$		{BC8, 6Cube, snubH4Φ 24−1, snubH4Φ 16−1, 5Dodecaa, ring6, H4Φring2}	$0apggsscc_{010110110_2}$	Bn{ 0 1 0 0 0 0 1 0 } E8{ $-\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ } Ph{ $-\frac{1}{2}$ $\frac{1}{2}$ 0 $-\frac{1}{\sqrt{2}}$ $-\frac{1}{2}$ $-\frac{1}{2\sqrt{3}}$ $\frac{1}{\sqrt{2}}$ $-\frac{1}{\sqrt{6}}$ }	Rt{ 1 0 1 1 1 1 0 1 } Wt{ 1 −1 1 0 0 0 −1 0 } Ht 6	Tc 43	Flipped Triad fpi=29 BC_8 L fp_sm=7→6BH {{1, 7, 2}, {1, 6, 3}, {1, 4, 5}, {2, 4, 3}}{{1, 2, 7}, {1, 5, 3}, {1, 4, 6}, {2, 3, 4 {2, 5, 6}, {3, 7, 5}, {4, 7, 6}} flat triad/mask bits {1, 2, 7, 6, 3, 4, 5} {1, 1, 0, 1, 0, 1, 1} Not Flipped Triad fpi=27 BC_8 L fp_sm=4→62H {{1, 2, 7}, {1, 5, 3}, {1, 4, 6}, {2, 3, 4 {2, 5, 6}, {3, 7, 6}, {4, 7, 5}} flat triad/mask bits {1, 2, 7, 5, 3, 4, 6} {0, 1, 0, 0, 0, 1, 1}
26	$\overline{b}\ {}^{+\to 1/3}_{c_m}\ \hat{L}$		{BC8, 6Cube, H4Φcell24, H4Φcell8, 5Dodecaa, ring8, H4Φring3}	$0apggsscc_{010111010_2}$	Bn{ 0 0 1 0 0 0 1 0 } E8{ $-\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ } Ph{ $-\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{\sqrt{2}}$ 0 $-\frac{1}{2}$ $-\frac{1}{2\sqrt{3}}$ $\frac{1}{\sqrt{2}}$ $-\frac{1}{\sqrt{6}}$ }	Rt{ 1 0 0 1 1 1 0 1 } Wt{ 1 0 −1 1 0 0 −1 0 } Ht 5	Kr 36	Flipped Triad fpi=29 BC_8 L fp_sm=7→58H {{1, 2, 7}, {1, 3, 6}, {1, 4, 5}, {2, 4, 3}}{{1, 7, 2}, {1, 3, 5}, {1, 4, 6}, {2, 3, 4 {2, 6, 5}, {3, 5, 7}, {4, 7, 6}} flat triad/mask bits {1, 7, 2, 3, 6, 4, 5} {0, 0, 0, 1, 1, 0, 1} Not Flipped Triad fpi=27 BC_8 L fp_sm=4→51H {{1, 7, 2}, {1, 3, 5}, {1, 4, 6}, {2, 3, 4 {2, 6, 5}, {3, 6, 7}, {4, 7, 5}} flat triad/mask bits {1, 7, 2, 3, 5, 4, 6} {0, 0, 0, 1, 0, 1, 1}
27	$\overline{b}\ {}^{1/3}_{m_m}\ \hat{L}$		{BC8, snubH4Φ 24−4, snubH4Φ 8−4, 5Dodecaa, ring4, H4Φring2}	$0apggsscc_{010111011_2}$	Bn{ 0 0 1 0 0 0 0 1 } E8{ $-\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ } Ph{ $-\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{\sqrt{2}}$ 0 $-\frac{1}{2}$ $-\frac{1}{2\sqrt{3}}$ 0 $\sqrt{\frac{2}{3}}$ }	Rt{ −1 −1 −2 −2 −3 −4 −2 −3 } Wt{ 1 0 −1 1 0 0 0 −1 } Ht 18	$\overline{\text{Md}}$ 101	Flipped Triad fpi=28 BC_8 L fp_sm=3→50H {{1, 2, 7}, {1, 3, 5}, {1, 4, 6}, {2, 3, 6}}{{1, 7, 2}, {1, 6, 3}, {1, 4, 5}, {2, 5, 3 {2, 5, 4}, {3, 4, 7}, {5, 7, 6}} flat triad/mask bits {1, 2, 7, 3, 5, 4, 6} {0, 0, 0, 0, 1, 0, 1} Not Flipped Triad fpi=30 BC_8 L fp_sm=6→5BH {{1, 7, 2}, {1, 6, 3}, {1, 4, 5}, {2, 5, 3 {2, 6, 4}, {3, 4, 7}, {5, 7, 6}} flat triad/mask bits {1, 7, 2, 6, 3, 4, 5} {1, 1, 0, 1, 1, 0, 1}
29	$\overline{b}\ {}^{+\to -2/3}_{o_m}\ \check{R}$		{BC8, E7, E6(27), 6Cube, C4, snubH4Φ 24−3, snubH4Φ 16−3, 5Dodecaa, ring6, H4Φring3}	$0apggsscc_{010111101_2}$	Bn{ 0 0 0 1 0 1 0 0 } E8{ $-\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ } Ph{ $-\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{\sqrt{2}}$ 0 $-\frac{1}{2}$ $-\frac{1}{2\sqrt{3}}$ $-\frac{1}{\sqrt{2}}$ $-\frac{1}{\sqrt{6}}$ }	Rt{ 1 0 0 0 1 1 1 1 } Wt{ 1 0 0 −1 1 −1 1 0 } Ht 5	Br 35	Flipped Triad fpi=26 BC_8 L fp_sm=8→47H {{1, 7, 2}, {1, 4, 3}, {1, 6, 5}, {2, 3, 6}}{{1, 2, 7}, {1, 3, 4}, {1, 6, 5}, {2, 3, 5 {2, 4, 5}, {3, 5, 7}, {4, 7, 6}} flat triad/mask bits {1, 2, 7, 4, 3, 6, 5} {1, 1, 1, 0, 0, 0, 1} Not Flipped Triad fpi=25 BC_8 L fp_sm=5→44H {{1, 7, 2}, {1, 3, 4}, {1, 6, 5}, {2, 3, 5 {2, 4, 6}, {3, 6, 7}, {4, 7, 5}} flat triad/mask bits {1, 2, 7, 3, 4, 6, 5} {0, 0, 1, 0, 0, 0, 1}
31	$\overline{b}\ {}^{1/3\to -2/3}_{m_m}\ \check{R}$		{BC8, H4Φcell24, H4Φcell8, 5Dodecaa, ring2, H4Φring2}	$0apggsscc_{010111111_2}$	Bn{ 0 0 0 1 0 0 0 1 } E8{ $-\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ } Ph{ $-\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{\sqrt{2}}$ 0 $-\frac{1}{2}$ $-\frac{1}{2\sqrt{3}}$ 0 $\sqrt{\frac{2}{3}}$ }	Rt{ −1 −1 −2 −3 −3 −4 −2 −3 } Wt{ 1 0 0 −1 1 0 0 −1 } Ht 19	$\overline{\text{Rf}}$ 104	Flipped Triad fpi=28 BC_8 L fp_sm=3→4EH {{1, 2, 7}, {1, 5, 3}, {1, 6, 4}, {2, 6, 3}}{{1, 7, 2}, {1, 3, 6}, {1, 5, 4}, {2, 3, 5 {2, 4, 5}, {3, 4, 7}, {5, 7, 6}} flat triad/mask bits {1, 2, 7, 5, 3, 6, 4} {0, 1, 1, 1, 0, 0, 1} Not Flipped Triad fpi=30 BC_8 L fp_sm=6→45H {{1, 7, 2}, {1, 3, 6}, {1, 5, 4}, {2, 3, 5 {2, 4, 6}, {3, 4, 7}, {5, 7, 6}} flat triad/mask bits {1, 7, 2, 3, 6, 5, 4} {1, 0, 1, 0, 0, 0, 1}
35	$u\ {}^{2/3}_{b_l}\ \hat{R}$		{BC8, 6Cube, snubH4Φ 24−2, 5Dodecaa, ring5, H4Φring3}	$0apggsscc_{001010111_2}$	Bn{ 0 0 0 0 0 1 1 0 } E8{ $-\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ } Ph{ $-\frac{1}{2}$ $-\frac{1}{2}$ 0 $-\frac{1}{\sqrt{2}}$ $-\frac{1}{2}$ $\frac{1}{2\sqrt{3}}$ 0 $-\sqrt{\frac{2}{3}}$ }	Rt{ 1 0 0 0 0 0 0 1 } Wt{ 1 0 0 0 0 −1 0 1 } Ht 2	P 15	Flipped Triad fpi=13 BC_8 R fp_sm=6→10H {{1, 2, 5}, {1, 3, 4}, {1, 6, 7}, {2, 3, 6}}{{1, 5, 2}, {1, 4, 3}, {1, 6, 7}, {2, 3, 7 {2, 7, 4}, {3, 5, 7}, {4, 5, 6}} flat triad/mask bits {1, 5, 2, 3, 4, 6, 7} {0, 0, 0, 0, 1, 0, 0} Not Flipped Triad fpi=14 BC_8 R fp_sm=7→13H {{1, 5, 2}, {1, 4, 3}, {1, 6, 7}, {2, 3, 7 {2, 6, 4}, {3, 5, 6}, {4, 5, 7}} flat triad/mask bits {1, 5, 2, 4, 3, 6, 7} {1, 1, 0, 0, 1, 0, 0}
36	$u\ {}^{0\to 2/3}_{g_l}\ \hat{R}$		{BC8, snubH4Φ 24−2, snubH4Φ 16−2, 5Dodecaa, ring6, H4Φring3}	$0apggsscc_{001010110_2}$	Bn{ 0 0 0 0 0 1 0 1 } E8{ $-\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ } Ph{ $-\frac{1}{2}$ $-\frac{1}{2}$ 0 $-\frac{1}{\sqrt{2}}$ $-\frac{1}{2}$ $\frac{1}{2\sqrt{3}}$ $-\frac{1}{\sqrt{2}}$ $\frac{1}{\sqrt{6}}$ }	Rt{ −1 −1 −2 −3 −4 −5 −2 −3 } Wt{ 1 0 0 0 0 −1 1 0 } Ht 21	$\overline{\text{Mt}}$ 109	Flipped Triad fpi=12 BC_8 R fp_sm=4→1AH {{1, 2, 4}, {1, 7, 3}, {1, 5, 6}, {2, 6, 3}}{{1, 4, 2}, {1, 3, 7}, {1, 5, 6}, {2, 5, 3 {2, 7, 5}, {3, 4, 5}, {4, 6, 7}} flat triad/mask bits {1, 4, 2, 7, 3, 5, 6} {0, 1, 0, 1, 1, 0, 0} Not Flipped Triad fpi=11 BC_8 R fp_sm=1→19H {{1, 4, 2}, {1, 3, 7}, {1, 5, 6}, {2, 5, 3 {2, 7, 6}, {3, 4, 6}, {4, 5, 7}} flat triad/mask bits {1, 4, 2, 3, 7, 5, 6} {1, 0, 0, 1, 1, 0, 0}
37	$u\ {}^{0\to 2/3}_{t_l}\ \hat{R}$		{BC8, E7, E6(27), snubH4Φ 24−2, 5Dodecaa, ring7, H4Φring4}	$0apggsscc_{001010101_2}$	Bn{ 0 0 0 0 0 0 1 1 } E8{ $-\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ } Ph{ $-\frac{1}{2}$ $-\frac{1}{2}$ 0 $-\frac{1}{\sqrt{2}}$ $-\frac{1}{2}$ $\frac{1}{2\sqrt{3}}$ $\frac{1}{\sqrt{2}}$ $\frac{1}{\sqrt{6}}$ }	Rt{ −1 −1 −2 −3 −4 −5 −3 −3 } Wt{ 1 0 0 0 0 0 −1 0 } Ht 22	$\overline{\text{Rg}}$ 111	Flipped Triad fpi=10 BC_8 R fp_sm=5→11H {{1, 4, 2}, {1, 3, 6}, {1, 5, 7}, {2, 3, 7}}{{1, 2, 4}, {1, 3, 5}, {1, 6, 7}, {2, 7, 3 {2, 6, 5}, {3, 4, 5}, {4, 6, 7}} flat triad/mask bits {1, 2, 4, 3, 6, 5, 7} {1, 0, 0, 0, 1, 0, 0} Not Flipped Triad fpi=8 BC_8 R fp_sm=2→18H {{1, 2, 4}, {1, 3, 5}, {1, 6, 7}, {2, 7, 3 {2, 6, 5}, {3, 4, 6}, {4, 5, 7}} flat triad/mask bits {1, 2, 4, 3, 5, 6, 7} {0, 0, 0, 1, 1, 0, 0}
130	$\overline{t}\ {}^{0\to -2/3}_{t_l}\ \hat{R}$		{BC8, E7, 6Cube, C4, snubH4Φ 24−3, Idempot, 5Dodecaa, ring7, H4Φring4}	$0apggsscc_{011110101_2}$	Bn{ 0 1 1 1 0 1 0 0 } E8{ $-\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ } Ph{ $-\frac{1}{2}$ $\frac{1}{2}$ 0 $\frac{1}{\sqrt{2}}$ $-\frac{1}{2}$ $-\frac{1}{2\sqrt{3}}$ $-\frac{1}{\sqrt{2}}$ $-\frac{1}{\sqrt{6}}$ }	Rt{ 1 0 1 2 3 3 2 2 } Wt{ 0 −1 0 0 1 −1 1 0 } Ht 14	At 85	Flipped Triad fpi=25 BC_8 R fp_sm=5→6EH {{1, 2, 7}, {1, 4, 3}, {1, 6, 5}, {2, 5, 3}}{{1, 7, 2}, {1, 3, 4}, {1, 6, 5}, {2, 6, 3 {2, 4, 6}, {3, 7, 6}, {4, 7, 5}} flat triad/mask bits {1, 7, 2, 4, 3, 6, 5} {0, 1, 1, 1, 0, 1, 1} Not Flipped Triad fpi=26 BC_8 R fp_sm=8→6DH {{1, 7, 2}, {1, 3, 4}, {1, 6, 5}, {2, 6, 3 {2, 4, 5}, {3, 7, 5}, {4, 7, 6}} flat triad/mask bits {1, 7, 2, 3, 4, 6, 5} {1, 0, 1, 1, 0, 1, 1}
131	$\overline{\ }\ {}^{0\to -2/3}$		{BC8, 6Cube, snubH4Φ 24−1,	$0apggsscc$	Bn{ 0 1 1 1 0 0 1 0 } E8{ $-\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ }	Rt{ 1 0 1 2 3 3 1 2 } Wt{ 0 −1 0 0 1 0 −1 0 }	Tl	Flipped Triad fpi=27 BC_8 R fp_sm=4→65H {{1, 7, 2}, {1, 3, 5}, {1, 6, 4}, {2, 3, 4}}{{1, 2, 7}, {1, 3, 6}, {1, 5, 4}, {2, 4, 3 {2, 5, 6}, {3, 7, 6}, {4, 7, 5}} Not Flipped Triad fpi=29 BC_8 R fp_sm=7→6CH {{1, 7, 2}, {1, 3, 6}, {1, 5, 4}, {2, 4, 3 {2, 5, 6}, {3, 7, 5}, {4, 7, 6}}

Seq ♯	Symbol	2D/3D Shape	Groups	Particle Quantum Bits	Binary / E8 / Physics Coordinates	Algebra Root Weight / Height / Rt♯=Atomic Element Number −−>	Ele ♯	Octonions
131	$\overset{t}{s}_{l}\ \hat{R}$		5Dodecaa, ring8, H4Φring1}	011110110_2	Bn{ $-\frac{1}{2}$ $\frac{1}{2}$ 0 $\frac{1}{\sqrt{2}}$ $-\frac{1}{2}$ $-\frac{1}{2\sqrt{3}}$ $\frac{1}{\sqrt{2}}$ $-\frac{1}{\sqrt{6}}$ } E8{ $-\frac{1}{2}$ $\frac{1}{2}$ 0 $\frac{1}{\sqrt{2}}$ $-\frac{1}{2}$ $-\frac{1}{2\sqrt{3}}$ 0 $\sqrt{\frac{2}{3}}$ } Ph{	Wt{ 0 −1 0 0 1 0 −1 0 } Ht 13	81	{{2, 5}, {3, 5}, {4, 5}, {5, 5}} {{2, 5}, {3, 5}, {4, 5}, {5, 5}} flat triad/mask bits {1, 2, 7, 3, 5, 6, 4} {1, 0, 1, 0, 0, 1, 1} Flipped Triad fpi=30 BC_8 R fp_sm=6→6FH {{1, 7, 2}, {1, 6, 3}, {1, 5, 4}, {2, 5, 3}, {2, 4, 6}, {3, 7, 4}, {5, 7, 6}} flat triad/mask bits {1, 2, 7, 6, 3, 5, 4} {1, 1, 1, 1, 0, 1, 1} Not Flipped Triad fpi=28 BC_8 R fp_sm=3→64H {{1, 2, 7}, {1, 3, 5}, {1, 6, 4}, {2, 3, 6, 4, 5}, {3, 7, 4}, {5, 7, 6}} flat triad/mask bits {1, 7, 2, 3, 5, 6, 4} {0, 0, 1, 0, 0, 1, 1}
132	$\overline{t}\ b_{l}^{-2/3}\ \hat{R}$		{BC8, snubH4Φ 24−4, snubH4Φ 16−4, 5Dodecaa, ring6, H4Φring2}	$0apggsscc$ 011110111_2	Bn{ 0 1 1 1 0 0 0 1 } E8{ $-\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ } Ph{ $-\frac{1}{2}$ $\frac{1}{2}$ 0 $\frac{1}{\sqrt{2}}$ $-\frac{1}{2}$ $-\frac{1}{2\sqrt{3}}$ 0 $\sqrt{\frac{2}{3}}$ }	Rt{ −1 −1 −1 −1 −1 −2 −1 −2 } Wt{ 0 −1 0 0 1 0 0 −1 } Ht 10	$\overline{\text{Ho}}$ 67	flat triad/mask bits {1, 2, 7, 6, 3, 5, 4} {1, 1, 1, 1, 0, 1, 1} Flipped Triad fpi=13 BC_8 R fp_sm=6→23H {{1, 5, 2}, {1, 4, 3}, {1, 6, 7}, {2, 3, 6}, {2, 4, 7}, {3, 7, 5}, {4, 5, 6}} flat triad/mask bits {1, 2, 5, 4, 3, 6, 7} {1, 1, 0, 0, 0, 1, 0} Not Flipped Triad fpi=14 BC_8 R fp_sm=7→20H {{1, 2, 5}, {1, 3, 4}, {1, 6, 7}, {2, 3, 7, 4, 6}, {2, 4, 6}, {3, 6, 5}, {4, 5, 7}} flat triad/mask bits {1, 2, 5, 3, 4, 6, 7} {0, 0, 0, 0, 0, 1, 0}
136	$u\ b_{m}^{2/3}\ \hat{L}$		{BC8, 6Cube, H4Φcell24, H4Φcell8, Hamming, 5Dodecaa, ring6, H4Φring1}	$0apggsscc$ 001011011_2	Bn{ 0 1 1 0 0 1 1 0 } E8{ $-\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ } Ph{ $-\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{\sqrt{2}}$ 0 $-\frac{1}{2}$ $\frac{1}{2\sqrt{3}}$ 0 $-\sqrt{\frac{2}{3}}$ }	Rt{ 1 0 1 2 2 2 1 2 } Wt{ 0 −1 0 1 0 −1 0 1 } Ht 11	Hf 72	flat triad/mask bits {1, 2, 5, 4, 3, 6, 7} {1, 1, 0, 0, 0, 1, 0} Flipped Triad fpi=10 BC_8 R fp_sm=5→22H {{1, 2, 4}, {1, 6, 3}, {1, 5, 7}, {2, 3, 7}, {2, 5, 6}, {3, 5, 4}, {4, 6, 7}} flat triad/mask bits {1, 4, 2, 6, 3, 5, 7} {0, 1, 0, 0, 0, 1, 0} Not Flipped Triad fpi=8 BC_8 R fp_sm=2→2BH {{1, 4, 2}, {1, 5, 3}, {1, 6, 7}, {2, 5, 6}, {3, 6, 4}, {4, 5, 7}} flat triad/mask bits {1, 4, 2, 5, 3, 6, 7} {1, 1, 0, 1, 0, 1, 0}
138	$u\ r_{m}^{0\to 2/3}\ \hat{L}$		{BC8, E7, snubH4Φ 24−4, snubH4Φ 8−4, 5Dodecaa, ring8, H4Φring1}	$0apggsscc$ 001011001_2	Bn{ 0 1 1 0 0 0 1 1 } E8{ $-\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ } Ph{ $-\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{\sqrt{2}}$ 0 $-\frac{1}{2}$ $\frac{1}{2\sqrt{3}}$ $\frac{1}{\sqrt{2}}$ $\frac{1}{\sqrt{6}}$ }	Rt{ −1 −1 −1 −1 −2 −3 −2 −2 } Wt{ 0 −1 0 1 0 0 −1 0 } Ht 13	$\overline{\text{Pb}}$ 82	flat triad/mask bits {1, 4, 2, 6, 3, 5, 7} {0, 1, 0, 0, 0, 1, 0} Flipped Triad fpi=14 BC_8 L fp_sm=7→27H {{1, 5, 2}, {1, 4, 3}, {1, 7, 6}, {2, 3, 7}, {2, 4, 6}, {3, 6, 5}, {4, 5, 7}} flat triad/mask bits {1, 2, 5, 4, 3, 7, 6} {1, 1, 1, 0, 0, 1, 0} Not Flipped Triad fpi=13 BC_8 L fp_sm=6→24H {{1, 2, 5}, {1, 3, 4}, {1, 7, 6}, {2, 3, 6, 4, 7}, {3, 7, 5}, {4, 5, 6}} flat triad/mask bits {1, 2, 5, 3, 4, 7, 6} {0, 0, 1, 0, 0, 1, 0}
142	$d\ m_{m}^{-1/3}\ \hat{L}$		{BC8, 6Cube, snubH4Φ 24−1, 5Dodecaa, ring4, H4Φring2}	$0apggsscc$ 000011011_2	Bn{ 0 1 0 1 0 1 1 0 } E8{ $-\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ } Ph{ $-\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{\sqrt{2}}$ 0 $-\frac{1}{2}$ $\frac{1}{2\sqrt{3}}$ 0 $-\sqrt{\frac{2}{3}}$ }	Rt{ 1 0 1 1 2 2 1 2 } Wt{ 0 −1 1 −1 1 −1 0 1 } Ht 10	Tb 65	flat triad/mask bits {1, 2, 5, 4, 3, 7, 6} {1, 1, 1, 0, 0, 1, 0} Flipped Triad fpi=11 BC_8 L fp_sm=1→2DH {{1, 4, 2}, {1, 3, 7}, {1, 6, 5}, {2, 5, 3}, {2, 6, 7}, {3, 6, 4}, {4, 5, 7}} flat triad/mask bits {1, 2, 4, 3, 7, 6, 5} {1, 0, 1, 1, 0, 1, 0} Not Flipped Triad fpi=12 BC_8 L fp_sm=4→2EH {{1, 4, 2}, {1, 3, 7}, {1, 6, 5}, {2, 6, 3, 7}, {3, 6, 4}, {4, 5, 7}} flat triad/mask bits {1, 2, 4, 7, 3, 6, 5} {0, 1, 1, 1, 0, 1, 0}
143	$d\ c_{m}^{\to -1/3}\ \hat{L}$		{BC8, H4Φcell24, H4Φcell8, Hamming, 5Dodecaa, ring7, H4Φring4}	$0apggsscc$ 000011010_2	Bn{ 0 1 0 1 0 1 0 1 } E8{ $-\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ } Ph{ $-\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{\sqrt{2}}$ 0 $-\frac{1}{2}$ $\frac{1}{2\sqrt{3}}$ $-\frac{1}{\sqrt{2}}$ $\frac{1}{\sqrt{6}}$ }	Rt{ −1 −1 −1 −2 −2 −3 −1 −2 } Wt{ 0 −1 1 −1 1 −1 1 0 } Ht 13	$\overline{\text{Bi}}$ 83	flat triad/mask bits {1, 2, 4, 3, 7, 6, 5} {1, 0, 1, 1, 0, 1, 0} Flipped Triad fpi=11 BC_8 L fp_sm=1→1EH {{1, 4, 2}, {1, 7, 3}, {1, 6, 5}, {2, 5, 3}, {2, 7, 6}, {3, 4, 6}, {4, 5, 7}} flat triad/mask bits {1, 4, 2, 7, 3, 6, 5} {0, 1, 1, 1, 1, 0, 0} Not Flipped Triad fpi=12 BC_8 L fp_sm=4→1DH {{1, 4, 2}, {1, 3, 7}, {1, 6, 5}, {2, 6, 3, 7}, {3, 4, 5}, {4, 6, 7}} flat triad/mask bits {1, 4, 2, 3, 7, 6, 5} {1, 0, 1, 1, 1, 0, 0}
153	$d\ c_{l}^{\to -1/3}\ \hat{R}$		{BC8, snubH4Φ 24−3, 5Dodecaa, ring5, H4Φring3}	$0apggsscc$ 000010110_2	Bn{ 0 0 1 1 0 1 0 1 } E8{ $-\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ } Ph{ $-\frac{1}{2}$ $-\frac{1}{2}$ 0 $\frac{1}{\sqrt{2}}$ $-\frac{1}{2}$ $\frac{1}{2\sqrt{3}}$ $-\frac{1}{\sqrt{2}}$ $\frac{1}{\sqrt{6}}$ }	Rt{ −1 −1 −2 −2 −2 −3 −1 −2 } Wt{ 0 0 −1 0 1 −1 1 0 } Ht 14	$\overline{\text{Ra}}$ 88	flat triad/mask bits {1, 4, 2, 7, 3, 6, 5} {0, 1, 1, 1, 1, 0, 0} Flipped Triad fpi=8 BC_8 L fp_sm=2→1FH {{1, 4, 2}, {1, 5, 3}, {1, 7, 6}, {2, 7, 3}, {2, 6, 5}, {3, 4, 6}, {4, 5, 7}} flat triad/mask bits {1, 4, 2, 5, 3, 7, 6} {1, 1, 1, 1, 1, 0, 0} Not Flipped Triad fpi=10 BC_8 L fp_sm=5→16H {{1, 4, 2}, {1, 3, 7}, {1, 6, 3}, {1, 7, 5}, {2, 3, 7, 6}, {2, 6, 5}, {3, 4, 5}, {4, 6, 7}} flat triad/mask bits {1, 2, 4, 6, 3, 7, 5} {0, 1, 1, 0, 1, 0, 0}
154	$d\ c_{l}^{\to -1/3}\ \hat{R}$		{BC8, E7, H4Φcell24, H4Φcell8, Hamming, 5Dodecaa, ring6, H4Φring1}	$0apggsscc$ 000010101_2	Bn{ 0 0 1 1 0 0 1 1 } E8{ $-\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ } Ph{ $-\frac{1}{2}$ $-\frac{1}{2}$ 0 $\frac{1}{\sqrt{2}}$ $-\frac{1}{2}$ $\frac{1}{2\sqrt{3}}$ $\frac{1}{\sqrt{2}}$ $\frac{1}{\sqrt{6}}$ }	Rt{ −1 −1 −2 −2 −2 −3 −2 −2 } Wt{ 0 0 −1 0 1 0 −1 0 } Ht 15	$\overline{\text{Pa}}$ 91	flat triad/mask bits {1, 2, 4, 5, 3, 7, 6} {1, 1, 1, 1, 1, 0, 0} Flipped Triad fpi=24 BC_8 R fp_sm=3→64H {{1, 4, 2}, {1, 5, 3}, {1, 7, 6}, {2, 7, 3}, {2, 6, 5}, {3, 4, 6}, {4, 5, 7}} flat triad/mask bits {1, 2, 4, 5, 3, 7, 6} {1, 1, 1, 1, 1, 0, 0} Not Flipped Triad fpi=23 BC_8 R fp_sm=2→67H {{1, 4, 2}, {1, 3, 7}, {1, 6, 3}, {1, 7, 5}, {2, 3, 7, 6}, {2, 6, 5}, {3, 4, 5}, {4, 6, 7}} flat triad/mask bits {1, 2, 4, 6, 3, 7, 5} {0, 1, 1, 0, 1, 0, 0}
244	$\overline{v_{r}}\ w_{l}^{0}\ \hat{R}$		{BC8, E7, E6, H4Φcell24, H4Φcell8, 5Dodecaa, ring8, H4Φring3}	$0apggsscc$ 011110100_2	Bn{ 0 1 1 1 0 1 1 1 } E8{ $-\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ } Ph{ $-\frac{1}{2}$ $\frac{1}{2}$ 0 $\frac{1}{\sqrt{2}}$ $-\frac{1}{2}$ $\frac{\sqrt{3}}{2}$ 0 0 }	Rt{ −1 −1 −1 −1 −1 −2 −1 −1 } Wt{ −1 −1 0 0 1 −1 0 1 } Ht 9	$\overline{\text{Sm}}$ 62	flat triad/mask bits {1, 6, 2, 3, 7, 5, 4} {0, 0, 1, 0, 0, 1, 1} Flipped Triad fpi=30 BC_8 R fp_sm=6→6FH {{1, 7, 2}, {1, 6, 3}, {1, 5, 4}, {2, 5, 3}, {2, 4, 6}, {3, 7, 4}, {5, 7, 6}} flat triad/mask bits {1, 6, 2, 3, 7, 5, 4} {0, 0, 1, 0, 0, 1, 1} Not Flipped Triad fpi=28 BC_8 R fp_sm=3→64H {{1, 2, 7}, {1, 3, 5}, {1, 6, 4}, {2, 3, 6, 4, 5}, {3, 7, 4}, {5, 7, 6}} flat triad/mask bits {1, 6, 2, 3, 7, 5, 4} {0, 0, 1, 0, 0, 1, 1}
13	$v_{r}\ w_{l}^{0}\ \hat{R}$		{BC8, E7, E6, 6Cube, C4, H4Φcell24, H4Φcell8, 5Dodecab, ring8, H4Φring3}	$0apggsscc$ 001110100_2	Bn{ 1 0 0 0 1 0 0 0 } E8{ $\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ } Ph{ $\frac{1}{2}$ $-\frac{1}{2}$ 0 $-\frac{1}{\sqrt{2}}$ $\frac{1}{2}$ $-\frac{\sqrt{3}}{2}$ 0 0 }	Rt{ 1 1 1 1 1 2 1 1 } Wt{ 1 1 0 0 −1 1 0 −1 } Ht 9	Sm 62	flat triad/mask bits {1, 6, 2, 3, 7, 4, 5} {0, 0, 0, 1, 1, 0, 0} Flipped Triad fpi=23 BC_8 R fp_sm=2→18H {{1, 2, 6}, {1, 3, 7}, {1, 4, 5}, {2, 4, 3}, {2, 5, 6}, {3, 5, 6}, {4, 6, 7}} flat triad/mask bits {1, 6, 2, 3, 7, 4, 5} {1, 1, 0, 1, 1, 0, 0} Not Flipped Triad fpi=24 BC_8 R fp_sm=3→1BH {{1, 2, 6}, {1, 3, 7}, {1, 4, 5}, {2, 5, 3, 7}, {2, 7, 5}, {3, 5, 6}, {4, 6, 7}} flat triad/mask bits {1, 6, 2, 7, 3, 4, 5} {1, 1, 0, 1, 1, 0, 0}
103	$\overline{d}\ c_{l}^{+\to 1/3}\ \hat{R}$		{BC8, E7, E6(27), 6Cube, C4, H4Φcell24, H4Φcell8, Hamming, 5Dodecab, ring6, H4Φring1}	$0apggsscc$ 010010101_2	Bn{ 1 1 0 0 1 1 0 0 } E8{ $\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ } Ph{ $\frac{1}{2}$ $\frac{1}{2}$ 0 $-\frac{1}{\sqrt{2}}$ $\frac{1}{2}$ $-\frac{1}{2\sqrt{3}}$ $-\frac{1}{\sqrt{2}}$ $-\frac{1}{\sqrt{6}}$ }	Rt{ 1 1 2 2 2 3 2 2 } Wt{ 0 0 1 0 −1 0 1 0 } Ht 15	Pa 91	flat triad/mask bits {1, 2, 4, 3, 6, 5, 7} {1, 0, 0, 1, 0, 1, 1} Flipped Triad fpi=10 BC_8 L fp_sm=5→69H {{1, 4, 2}, {1, 3, 6}, {1, 5, 7}, {2, 7, 3}, {2, 5, 6}, {3, 5, 4}, {4, 7, 6}} flat triad/mask bits {1, 2, 4, 3, 6, 5, 7} {1, 0, 0, 1, 0, 1, 1} Not Flipped Triad fpi=8 BC_8 L fp_sm=2→60H {{1, 4, 2}, {1, 3, 5}, {1, 6, 7}, {2, 3, 7, 6}, {2, 5, 6}, {3, 6, 4}, {4, 7, 5}} flat triad/mask bits {1, 2, 4, 3, 5, 6, 7} {0, 0, 0, 0, 0, 1, 1}
104	$\overline{d}\ c_{l}^{+\to 1/3}\ \hat{R}$		{BC8, 6Cube, snubH4Φ 24−3, 5Dodecab, ring5, H4Φring3}	$0apggsscc$ 010010110_2	Bn{ 1 1 0 0 1 0 1 0 } E8{ $\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ } Ph{ $\frac{1}{2}$ $\frac{1}{2}$ 0 $-\frac{1}{\sqrt{2}}$ $\frac{1}{2}$ $-\frac{1}{2\sqrt{3}}$ $\frac{1}{\sqrt{2}}$ $-\frac{1}{\sqrt{6}}$ }	Rt{ 1 1 2 2 2 3 1 2 } Wt{ 0 0 1 0 −1 1 −1 0 } Ht 14	Ra 88	flat triad/mask bits {1, 4, 2, 7, 3, 5, 6} {0, 1, 0, 0, 0, 1, 1} Flipped Triad fpi=12 BC_8 L fp_sm=4→62H {{1, 2, 4}, {1, 7, 3}, {1, 5, 6}, {2, 3, 6}, {2, 5, 7}, {3, 5, 4}, {4, 7, 6}} flat triad/mask bits {1, 4, 2, 7, 3, 5, 6} {0, 1, 0, 0, 0, 1, 1} Not Flipped Triad fpi=11 BC_8 L fp_sm=1→61H {{1, 2, 4}, {1, 3, 7}, {1, 5, 6}, {2, 3, 5, 6}, {2, 6, 7}, {3, 6, 4}, {4, 7, 5}} flat triad/mask bits {1, 4, 2, 3, 7, 5, 6} {1, 0, 0, 0, 0, 1, 1}
114	$\overline{d}\ {}^{+\to 1/3}$		{BC8, 6Cube, H4Φcell24, H4Φcell8,	$0apggsscc$	Bn{ 1 0 1 0 1 0 1 0 } E8{ $\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ }	Rt{ 1 1 1 2 2 3 1 2 } Wt{ 0 1 −1 1 −1 1 −1 0 }	Bi	flat triad/mask bits {1, 4, 2, 7, 3, 5, 6} {0, 1, 0, 0, 0, 1, 1} Flipped Triad fpi=12 BC_8 L fp_sm=4→51H {{1, 4, 2}, {1, 3, 7}, {1, 5, 6}, {2, 3, 6}, {2, 5, 7}, {3, 4, 5}, {4, 7, 6}} flat triad/mask bits {1, 4, 2, 3, 7, 5, 6} {1, 0, 0, 0, 0, 1, 1} Not Flipped Triad fpi=11 BC_8 L fp_sm=1→52H {{1, 4, 2}, {1, 3, 7}, {1, 5, 6}, {2, 3, 5, 6}, {2, 7, 6}, {3, 4, 6}, {4, 7, 5}} flat triad/mask bits {1, 4, 2, 3, 7, 5, 6} {1, 0, 0, 0, 0, 1, 1}

	$\overset{\wedge}{\mathrm{L}}$			Hamming, 5Dodecab, ring7, H4Φring4}	010011010_2	Ph{	$\frac{1}{2}$	$-\frac{1}{2}$	$\frac{1}{\sqrt{2}}$	0	$\frac{1}{2}$	$-\frac{1}{2\sqrt{3}}$	$\frac{1}{\sqrt{2}}$	$-\frac{1}{\sqrt{6}}$	}	Ht	13											83	flat triad/mask bits {1, 2, 4, 3, 7, 5, 6} {1, 0, 0, 0, 1, 0, 1}	flat triad/mask bits {1, 2, 4, 7, 3, 5, 6} {0, 1, 0, 0, 1, 0, 1}
																													Flipped Triad fpi=13 BC_8 L fp_sm=6→5BH	Not Flipped Triad fpi=14 BC_8 L fp_sm=7→58H
115	$\overline{\mathrm{d}}_{\mathrm{m}}^{1/3}\overset{\wedge}{\mathrm{L}}$			{BC8, snubH4Φ 24−1, 5Dodecab, ring4, H4Φring2}	$0apggsscc$ 010011011_2	Bn{	1	0	1	0	1	0	0	1	}	Rt{	−1	0	−1	−1	−2	−2	−1	−2	}	Tb 65	{{1, 5, 2}, {1, 4, 3}, {1, 6, 7}, {2, 6, 3}}, {{2, 7, 4}, {3, 5, 7}, {4, 6, 5}}	{{1, 5, 2}, {1, 3, 4}, {1, 6, 7}, {2, 7, 3}}, {{2, 6, 4}, {3, 5, 6}, {4, 7, 5}}
						E8{	$\frac{1}{2}$	$-\frac{1}{2}$	$\frac{1}{2}$	$-\frac{1}{2}$	$\frac{1}{2}$	$-\frac{1}{2}$	$-\frac{1}{2}$	$\frac{1}{2}$	}	Wt{	0	1	−1	1	−1	1	0	−1	}			
						Ph{	$\frac{1}{2}$	$-\frac{1}{2}$	$\frac{1}{\sqrt{2}}$	0	$\frac{1}{2}$	$-\frac{1}{2\sqrt{3}}$	0	$\sqrt{\frac{2}{3}}$	}	Ht	10											flat triad/mask bits {1, 2, 5, 4, 3, 6, 7} {1, 1, 0, 1, 1, 0, 1}	flat triad/mask bits {1, 2, 5, 3, 4, 6, 7} {0, 0, 0, 1, 1, 0, 1}
																													Flipped Triad fpi=8 BC_8 R fp_sm=2→54H	Not Flipped Triad fpi=10 BC_8 R fp_sm=5→5DH
119	$\overline{\mathrm{u}}_{\mathrm{r_m}}^{0\to-2/3}\overset{\wedge}{\mathrm{L}}$			{BC8, E7, E6(27), 6Cube, C4, snubH4Φ 24−4, snubH4Φ 8−4, 5Dodecab, ring8, H4Φring1}	$0apggsscc$ 011011001_2	Bn{	1	0	0	1	1	1	0	0	}	Rt{	1	1	1	1	2	3	2	2	}	Pb 82	{{1, 2, 4}, {1, 3, 5}, {1, 7, 6}, {2, 3, 7}}, {{2, 6, 5}, {3, 4, 6}, {4, 7, 5}}	{{1, 4, 2}, {1, 3, 6}, {1, 7, 5}, {2, 7, 3}}, {{2, 6, 5}, {3, 4, 5}, {4, 7, 6}}
						E8{	$\frac{1}{2}$	$-\frac{1}{2}$	$-\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$-\frac{1}{2}$	$-\frac{1}{2}$	}	Wt{	0	1	0	−1	0	0	1	0	}			
						Ph{	$\frac{1}{2}$	$-\frac{1}{2}$	$-\frac{1}{\sqrt{2}}$	0	$\frac{1}{2}$	$-\frac{1}{2\sqrt{3}}$	$-\frac{1}{\sqrt{2}}$	$-\frac{1}{\sqrt{6}}$	}	Ht	13											flat triad/mask bits {1, 4, 2, 3, 5, 7, 6} {0, 0, 1, 0, 1, 0, 1}	flat triad/mask bits {1, 4, 2, 3, 6, 7, 5} {1, 0, 1, 1, 1, 0, 1}
																													Flipped Triad fpi=14 BC_8 R fp_sm=7→5FH	Not Flipped Triad fpi=13 BC_8 R fp_sm=6→5CH
121	$\overline{\mathrm{u}}_{\mathrm{b_m}}^{-2/3}\overset{\wedge}{\mathrm{L}}$			{BC8, H4Φcell24, H4Φcell8, Hamming, 5Dodecab, ring6, H4Φring1}	$0apggsscc$ 011011011_2	Bn{	1	0	0	1	1	0	0	1	}	Rt{	−1	0	−1	−2	−2	−2	−1	−2	}	Hf 72	{{1, 5, 2}, {1, 4, 3}, {1, 7, 6}, {2, 7, 3}}, {{2, 6, 4}, {3, 5, 6}, {4, 7, 5}}	{{1, 5, 2}, {1, 3, 4}, {1, 7, 6}, {2, 6, 3}}, {{2, 7, 4}, {3, 5, 7}, {4, 6, 5}}
						E8{	$\frac{1}{2}$	$-\frac{1}{2}$	$-\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$-\frac{1}{2}$	$-\frac{1}{2}$	$\frac{1}{2}$	}	Wt{	0	1	0	−1	0	1	0	−1	}			
						Ph{	$\frac{1}{2}$	$-\frac{1}{2}$	$-\frac{1}{\sqrt{2}}$	0	$\frac{1}{2}$	$-\frac{1}{2\sqrt{3}}$	0	$\sqrt{\frac{2}{3}}$	}	Ht	11											flat triad/mask bits {1, 2, 5, 4, 3, 7, 6} {1, 1, 1, 1, 1, 0, 1}	flat triad/mask bits {1, 2, 5, 3, 4, 7, 6} {0, 0, 1, 1, 1, 0, 1}
																													Flipped Triad fpi=28 BC_8 R fp_sm=3→1BH	Not Flipped Triad fpi=30 BC_8 R fp_sm=6→10H
125	$\mathrm{t}_{\mathrm{b_l}}^{2/3}\overset{\wedge}{\mathrm{R}}$			{BC8, 6Cube, snubH4Φ 24−4, snubH4Φ 16−4, 5Dodecab, ring6, H4Φring2}	$0apggsscc$ 001110111_2	Bn{	1	0	0	0	1	1	1	0	}	Rt{	1	1	1	1	1	2	1	2	}	Ho 67	{{1, 7, 2}, {1, 5, 3}, {1, 4, 6}, {2, 6, 3}}, {{2, 5, 4}, {3, 4, 7}, {5, 6, 7}}	{{1, 2, 7}, {1, 3, 6}, {1, 4, 5}, {2, 3, 5}}, {{2, 6, 4}, {3, 4, 7}, {5, 6, 7}}
						E8{	$\frac{1}{2}$	$-\frac{1}{2}$	$-\frac{1}{2}$	$-\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$-\frac{1}{2}$	}	Wt{	0	1	0	0	−1	0	0	1	}			
						Ph{	$\frac{1}{2}$	$-\frac{1}{2}$	0	$-\frac{1}{\sqrt{2}}$	$\frac{1}{2}$	$\frac{1}{2\sqrt{3}}$	0	$-\sqrt{\frac{2}{3}}$	}	Ht	10											flat triad/mask bits {1, 7, 2, 5, 3, 4, 6} {1, 1, 0, 1, 1, 0, 0}	flat triad/mask bits {1, 2, 7, 3, 6, 4, 5} {0, 0, 0, 0, 1, 0, 0}
																													Flipped Triad fpi=29 BC_8 R fp_sm=7→13H	Not Flipped Triad fpi=27 BC_8 R fp_sm=4→1AH
126	$\mathrm{t}_{\mathrm{g_l}}^{0\to2/3}\overset{\wedge}{\mathrm{R}}$			{BC8, snubH4Φ 24−1, 5Dodecab, ring8, H4Φring1}	$0apggsscc$ 001110110_2	Bn{	1	0	0	0	1	1	0	1	}	Rt{	−1	0	−1	−2	−3	−3	−1	−2	}	Ti 81	{{1, 7, 2}, {1, 6, 3}, {1, 4, 5}, {2, 3, 4}}, {{2, 6, 5}, {3, 5, 7}, {4, 6, 7}}	{{1, 2, 7}, {1, 5, 3}, {1, 4, 6}, {2, 4, 3}}, {{2, 6, 5}, {3, 6, 7}, {4, 5, 7}}
						E8{	$\frac{1}{2}$	$-\frac{1}{2}$	$-\frac{1}{2}$	$-\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$-\frac{1}{2}$	$\frac{1}{2}$	}	Wt{	0	1	0	0	−1	0	1	0	}			
						Ph{	$\frac{1}{2}$	$-\frac{1}{2}$	0	$-\frac{1}{\sqrt{2}}$	$\frac{1}{2}$	$\frac{1}{2\sqrt{3}}$	$-\frac{1}{\sqrt{2}}$	$\frac{1}{\sqrt{6}}$	}	Ht	13											flat triad/mask bits {1, 2, 7, 6, 3, 4, 5} {1, 1, 0, 0, 1, 0, 0}	flat triad/mask bits {1, 2, 7, 5, 3, 4, 6} {0, 1, 0, 1, 1, 0, 0}
																													Flipped Triad fpi=26 BC_8 R fp_sm=8→12H	Not Flipped Triad fpi=25 BC_8 R fp_sm=5→11H
127	$\mathrm{t}_{\mathrm{r_l}}^{0\to2/3}\overset{\wedge}{\mathrm{R}}$			{BC8, E7, E6(27), snubH4Φ 24−3, Idempot, 5Dodecab, ring7, H4Φring4}	$0apggsscc$ 001110101_2	Bn{	1	0	0	0	1	0	1	1	}	Rt{	−1	0	−1	−2	−3	−3	−2	−2	}	At 85	{{1, 7, 2}, {1, 4, 3}, {1, 5, 6}, {2, 3, 6}}, {{2, 5, 4}, {3, 5, 7}, {4, 6, 7}}	{{1, 7, 2}, {1, 3, 4}, {1, 5, 6}, {2, 3, 5}}, {{2, 6, 4}, {3, 6, 7}, {4, 5, 7}}
						E8{	$\frac{1}{2}$	$-\frac{1}{2}$	$-\frac{1}{2}$	$-\frac{1}{2}$	$\frac{1}{2}$	$-\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	}	Wt{	0	1	0	0	−1	1	−1	0	}			
						Ph{	$\frac{1}{2}$	$-\frac{1}{2}$	0	$-\frac{1}{\sqrt{2}}$	$\frac{1}{2}$	$\frac{1}{2\sqrt{3}}$	$\frac{1}{\sqrt{2}}$	$\frac{1}{\sqrt{6}}$	}	Ht	14											flat triad/mask bits {1, 7, 2, 4, 3, 5, 6} {0, 1, 0, 0, 1, 0, 0}	flat triad/mask bits {1, 7, 2, 3, 4, 5, 6} {1, 0, 0, 0, 1, 0, 0}
																													Flipped Triad fpi=8 BC_8 R fp_sm=2→67H	Not Flipped Triad fpi=10 BC_8 R fp_sm=5→6EH
220	$\overline{\mathrm{u}}_{\mathrm{r_l}}^{0\to-2/3}\overset{\wedge}{\mathrm{R}}$			{BC8, E7, 6Cube, C4, snubH4Φ 24−2, 5Dodecab, ring7, H4Φring4}	$0apggsscc$ 011010101_2	Bn{	1	1	1	1	1	1	0	0	}	Rt{	1	1	2	3	4	5	3	3	}	Rg 111	{{1, 4, 2}, {1, 5, 3}, {1, 7, 6}, {2, 3, 7}}, {{2, 5, 6}, {3, 6, 4}, {4, 7, 5}}	{{1, 2, 4}, {1, 6, 3}, {1, 7, 5}, {2, 7, 3}}, {{2, 5, 6}, {3, 5, 4}, {4, 7, 6}}
						E8{	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$-\frac{1}{2}$	$-\frac{1}{2}$	}	Wt{	−1	0	0	0	0	0	1	0	}			
						Ph{	$\frac{1}{2}$	$\frac{1}{2}$	0	$\frac{1}{\sqrt{2}}$	$\frac{1}{2}$	$-\frac{1}{2\sqrt{3}}$	$-\frac{1}{\sqrt{2}}$	$-\frac{1}{\sqrt{6}}$	}	Ht	22											flat triad/mask bits {1, 2, 4, 5, 3, 7, 6} {1, 1, 1, 0, 0, 1, 1}	flat triad/mask bits {1, 2, 4, 6, 3, 7, 5} {0, 1, 1, 1, 0, 1, 1}
																													Flipped Triad fpi=11 BC_8 R fp_sm=1→66H	Not Flipped Triad fpi=12 BC_8 R fp_sm=4→65H
221	$\overline{\mathrm{u}}_{\mathrm{g_l}}^{0\to-2/3}\overset{\wedge}{\mathrm{R}}$			{BC8, 6Cube, snubH4Φ 24−2, snubH4Φ 16−2, 5Dodecab, ring6, H4Φring3}	$0apggsscc$ 011010110_2	Bn{	1	1	1	1	1	0	1	0	}	Rt{	1	1	2	3	4	5	2	3	}	Mt 109	{{1, 4, 2}, {1, 7, 3}, {1, 6, 5}, {2, 3, 5}}, {{2, 6, 7}, {3, 6, 4}, {4, 7, 5}}	{{1, 4, 2}, {1, 3, 7}, {1, 6, 5}, {2, 3, 6}}, {{2, 5, 7}, {3, 5, 4}, {4, 7, 6}}
						E8{	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$-\frac{1}{2}$	$\frac{1}{2}$	$-\frac{1}{2}$	}	Wt{	−1	0	0	0	0	1	−1	0	}			
						Ph{	$\frac{1}{2}$	$\frac{1}{2}$	0	$\frac{1}{\sqrt{2}}$	$\frac{1}{2}$	$-\frac{1}{2\sqrt{3}}$	$\frac{1}{\sqrt{2}}$	$-\frac{1}{\sqrt{6}}$	}	Ht	21											flat triad/mask bits {1, 4, 2, 7, 3, 6, 5} {0, 1, 1, 0, 0, 1, 1}	flat triad/mask bits {1, 4, 2, 3, 7, 6, 5} {1, 0, 1, 0, 0, 1, 1}
																													Flipped Triad fpi=14 BC_8 R fp_sm=7→6CH	Not Flipped Triad fpi=13 BC_8 R fp_sm=6→6FH
222	$\overline{\mathrm{u}}_{\mathrm{b_l}}^{-2/3}\overset{\wedge}{\mathrm{R}}$			{BC8, snubH4Φ 24−2, 5Dodecab, ring5, H4Φring3}	$0apggsscc$ 011010111_2	Bn{	1	1	1	1	1	0	0	1	}	Rt{	−1	0	0	0	0	0	0	−1	}	$\overline{\mathrm{P}}$ 15	{{1, 2, 5}, {1, 3, 4}, {1, 7, 6}, {2, 7, 3}}, {{2, 6, 4}, {3, 6, 5}, {4, 7, 5}}	{{1, 5, 2}, {1, 4, 3}, {1, 7, 6}, {2, 6, 3}}, {{2, 4, 7}, {3, 7, 5}, {4, 6, 5}}
						E8{	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$-\frac{1}{2}$	$-\frac{1}{2}$	$\frac{1}{2}$	}	Wt{	−1	0	0	0	0	1	0	−1	}			
						Ph{	$\frac{1}{2}$	$\frac{1}{2}$	0	$\frac{1}{\sqrt{2}}$	$\frac{1}{2}$	$-\frac{1}{2\sqrt{3}}$	0	$\sqrt{\frac{2}{3}}$	}	Ht	2											flat triad/mask bits {1, 5, 2, 3, 4, 7, 6} {0, 0, 1, 1, 0, 1, 1}	flat triad/mask bits {1, 5, 2, 4, 3, 7, 6} {1, 1, 1, 1, 0, 1, 1}
																													Flipped Triad fpi=30 BC_8 L fp_sm=6→3AH	Not Flipped Triad fpi=28 BC_8 L fp_sm=3→31H
226	$\mathrm{b}_{\mathrm{m_m}}^{-1/3\to2/3}\overset{\vee}{\mathrm{R}}$			{BC8, 6Cube, H4Φcell24, H4Φcell8, 5Dodecab, ring2, H4Φring2}	$0apggsscc$ 000111111_2	Bn{	1	1	1	0	1	1	1	0	}	Rt{	1	1	2	3	3	4	2	3	}	Rf 104	{{1, 2, 7}, {1, 6, 3}, {1, 4, 5}, {2, 5, 3}}, {{2, 6, 4}, {3, 7, 4}, {5, 6, 7}}	{{1, 7, 2}, {1, 3, 5}, {1, 4, 6}, {2, 3, 6}}, {{2, 5, 4}, {3, 7, 4}, {5, 6, 7}}
						E8{	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$-\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$-\frac{1}{2}$	}	Wt{	−1	0	0	1	−1	0	0	1	}			
						Ph{	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{\sqrt{2}}$	0	$\frac{1}{2}$	$\frac{1}{2\sqrt{3}}$	0	$-\sqrt{\frac{2}{3}}$	}	Ht	19											flat triad/mask bits {1, 7, 2, 6, 3, 4, 5} {0, 1, 0, 1, 1, 1, 0}	flat triad/mask bits {1, 2, 7, 3, 5, 4, 6} {1, 0, 0, 0, 1, 1, 0}
																													Flipped Triad fpi=25 BC_8 L fp_sm=5→3BH	Not Flipped Triad fpi=26 BC_8 L fp_sm=8→38H
228	$\mathrm{b}_{\mathrm{o_m}}^{-\to2/3}\overset{\vee}{\mathrm{R}}$			{BC8, E7, snubH4Φ 24−3, snubH4Φ 16−3, 5Dodecab, ring6, H4Φring3}	$0apggsscc$ 000111101_2	Bn{	1	1	1	0	1	0	1	1	}	Rt{	−1	0	0	0	−1	−1	−1	−1	}	$\overline{\mathrm{Br}}$ 35	{{1, 2, 7}, {1, 4, 3}, {1, 5, 6}, {2, 5, 3}}, {{2, 6, 4}, {3, 7, 6}, {4, 5, 7}}	{{1, 2, 7}, {1, 3, 4}, {1, 5, 6}, {2, 6, 3}}, {{2, 5, 4}, {3, 7, 5}, {4, 6, 7}}
						E8{	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$-\frac{1}{2}$	$\frac{1}{2}$	$-\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	}	Wt{	−1	0	0	1	−1	1	−1	0	}			
						Ph{	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{\sqrt{2}}$	0	$\frac{1}{2}$	$\frac{1}{2\sqrt{3}}$	$\frac{1}{\sqrt{2}}$	$\frac{1}{\sqrt{6}}$	}	Ht	5											flat triad/mask bits {1, 2, 7, 4, 3, 5, 6} {1, 1, 0, 1, 1, 1, 0}	flat triad/mask bits {1, 2, 7, 3, 4, 5, 6} {0, 0, 0, 1, 1, 1, 0}
																													Flipped Triad fpi=30 BC_8 L fp_sm=6→24H	Not Flipped Triad fpi=28 BC_8 L fp_sm=3→2FH
230	$\mathrm{b}_{\mathrm{m_m}}^{-1/3}\overset{\wedge}{\mathrm{L}}$			{BC8, 6Cube, snubH4Φ 24−4, snubH4Φ 8−4, 5Dodecab, ring4, H4Φring2}	$0apggsscc$ 000111011_2	Bn{	1	1	0	1	1	1	1	0	}	Rt{	1	1	2	2	3	4	2	3	}	Md 101	{{1, 2, 7}, {1, 3, 6}, {1, 5, 4}, {2, 3, 5}}, {{2, 4, 6}, {3, 7, 4}, {5, 6, 7}}	{{1, 7, 2}, {1, 5, 3}, {1, 6, 4}, {2, 6, 3}}, {{2, 4, 5}, {3, 7, 4}, {5, 6, 7}}
						E8{	$\frac{1}{2}$	$\frac{1}{2}$	$-\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$-\frac{1}{2}$	}	Wt{	−1	0	1	−1	0	0	0	1	}			
						Ph{	$\frac{1}{2}$	$\frac{1}{2}$	$-\frac{1}{\sqrt{2}}$	0	$\frac{1}{2}$	$\frac{1}{2\sqrt{3}}$	0	$-\sqrt{\frac{2}{3}}$	}	Ht	18											flat triad/mask bits {1, 7, 2, 3, 6, 5, 4}	flat triad/mask bits {1, 2, 7, 5, 3, 6, 4}

231	$b^{\to\to -1/3}_{c_m \hat{L}}$	{BC8, H4Φcell24, H4Φcell8, 5Dodecab, ring8, H4Φring3}	$0apggsscc$ 000111010_2	Bn{	1	1	0	1	1	1	0	1 }	Rt{	−1	0	0	−1	−1	−1	0	−1 }	$\overline{Kr}$ 36	{0, 0, 1, 0, 0, 1, 0} Flipped Triad fpi=27 BC_8 L fp_sm=4→2EH {{1, 2, 7}, {1, 5, 3}, {1, 6, 4}, {2, 4, 3}, {2, 5, 6}, {3, 7, 6}, {4, 5, 7}} flat triad/mask bits {1, 7, 2, 5, 3, 6, 4} {0, 1, 1, 1, 0, 1, 0}	{1, 1, 1, 1, 0, 1, 0} Not Flipped Triad fpi=29 BC_8 L fp_sm=7→27H {{1, 7, 2}, {1, 6, 3}, {1, 5, 4}, {2, 3, 4}, {2, 5, 6}, {3, 7, 5}, {4, 6, 7}} flat triad/mask bits {1, 7, 2, 6, 3, 5, 4} {1, 1, 1, 0, 0, 1, 0}
				E8{	$\frac{1}{2}$	$\frac{1}{2}$	$-\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$-\frac{1}{2}$	$\frac{1}{2}$ }	Wt{	−1	0	1	−1	0	0	1	0 }				
				Ph{	$\frac{1}{2}$	$\frac{1}{2}$	$-\frac{1}{\sqrt{2}}$	0	$\frac{1}{2}$	$\frac{1}{2\sqrt{3}}$	$-\frac{1}{\sqrt{2}}$	$\frac{1}{\sqrt{6}}$ }	Ht	5										
236	$b^{\to\to -1/3}_{c_l \hat{R}}$	{BC8, snubH4Φ 24−1, snubH4Φ 16−1, 5Dodecab, ring6, H4Φring2}	$0apggsscc$ 000110110_2	Bn{	1	0	1	1	1	1	0	1 }	Rt{	−1	0	−1	−1	−1	−1	0	−1 }	$\overline{Tc}$ 43	Flipped Triad fpi=27 BC_8 L fp_sm=4→1DH {{1, 7, 2}, {1, 3, 5}, {1, 6, 4}, {2, 4, 3}, {2, 5, 6}, {3, 6, 7}, {4, 5, 7}} flat triad/mask bits {1, 2, 7, 3, 5, 6, 4} {1, 0, 1, 1, 1, 0, 0}	Not Flipped Triad fpi=29 BC_8 L fp_sm=7→14H {{1, 2, 7}, {1, 3, 6}, {1, 5, 4}, {2, 3, 4}, {2, 6, 5}, {3, 5, 7}, {4, 6, 7}} flat triad/mask bits {1, 2, 7, 3, 6, 5, 4} {0, 0, 1, 0, 1, 0, 0}
				E8{	$\frac{1}{2}$	$-\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$-\frac{1}{2}$	$\frac{1}{2}$ }	Wt{	−1	1	−1	0	0	0	1	0 }				
				Ph{	$\frac{1}{2}$	$-\frac{1}{2}$	0	$\frac{1}{\sqrt{2}}$	$\frac{1}{2}$	$\frac{1}{2\sqrt{3}}$	$-\frac{1}{\sqrt{2}}$	$\frac{1}{\sqrt{6}}$ }	Ht	6										
237	$b^{\to\to -1/3}_{c_l \hat{R}}$	{BC8, E7, H4Φcell24, H4Φcell8, 5Dodecab, ring2, H4Φring2}	$0apggsscc$ 000110101_2	Bn{	1	0	1	1	1	0	1	1 }	Rt{	−1	0	−1	−1	−1	−1	−1	−1 }	$\overline{In}$ 49	Flipped Triad fpi=25 BC_8 L fp_sm=5→16H {{1, 2, 7}, {1, 4, 3}, {1, 6, 5}, {2, 3, 5}, {2, 6, 4}, {3, 6, 7}, {4, 5, 7}} flat triad/mask bits {1, 7, 2, 4, 3, 6, 5} {0, 1, 1, 0, 1, 0, 0}	Not Flipped Triad fpi=26 BC_8 L fp_sm=8→15H {{1, 7, 2}, {1, 3, 4}, {1, 6, 5}, {2, 3, 6}, {2, 5, 4}, {3, 5, 7}, {4, 6, 7}} flat triad/mask bits {1, 7, 2, 3, 4, 6, 5} {1, 0, 1, 0, 1, 0, 0}
				E8{	$\frac{1}{2}$	$-\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$-\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$ }	Wt{	−1	1	−1	0	0	1	−1	0 }				
				Ph{	$\frac{1}{2}$	$-\frac{1}{2}$	0	$\frac{1}{\sqrt{2}}$	$\frac{1}{2}$	$\frac{1}{2\sqrt{3}}$	$\frac{1}{\sqrt{2}}$	$\frac{1}{\sqrt{6}}$ }	Ht	7										
256	$\overline{v_e}^{\,0}_{w_l \hat{R}}$	{BC8, E7, E6, E5, H4Φcell24, H4Φcell8, Hamming, Idempot, 5Dodecab, ring7, H4Φring4}	$0apggsscc$ 011010100_2	Bn{	1	1	1	1	1	1	1	1 }	Rt{	−1	0	0	0	0	0	0	0 }	$\overline{O}$ 8	Flipped Triad fpi=4 BC_8 R fp_sm=3→64H {{1, 2, 3}, {1, 4, 6}, {1, 7, 5}, {2, 4, 7}, {2, 5, 6}, {3, 5, 4}, {3, 7, 6}} flat triad/mask bits {1, 3, 2, 4, 6, 7, 5} {0, 0, 1, 0, 0, 1, 1}	Not Flipped Triad fpi=7 BC_8 R fp_sm=3→64H {{1, 2, 4}, {1, 3, 5}, {1, 7, 6}, {2, 3, 6}, {2, 5, 7}, {3, 7, 4}, {4, 6, 5}} flat triad/mask bits {1, 2, 4, 3, 5, 7, 6} {0, 0, 1, 0, 0, 1, 1}
				E8{	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$ }	Wt{	−2	0	0	0	0	0	0	1 }				
				Ph{	$\frac{1}{2}$	$\frac{1}{2}$	0	$\frac{1}{\sqrt{2}}$	$\frac{1}{2}$	$\frac{\sqrt{3}}{2}$	0	0 }	Ht	1										





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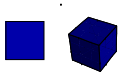
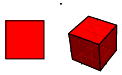
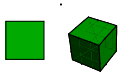
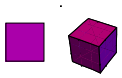
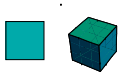
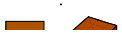
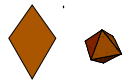
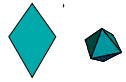
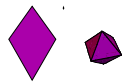
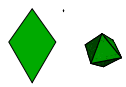
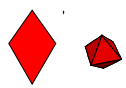
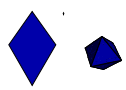
Out[2277]=

Seq #	Symbol	2D/3D Shape	Groups	Particle Quantum Bits	Binary / E8 / Physics Coordinates	Algebra Root Weight / Height / Rt#=Atomic Element Number -->	Ele #	Octonions
32	$\overline{d}^{\,+\to 1/3}_{\vee}$ ${}^{o}d\ L$		{BC8, E7, E6(27), 6Cube, C4, snubH4Φ 24−4, snubH4Φ 8−4, 6Icosaa, ring7, H4Φring2}	0apggsscc 010010001_2	Bn{ 0 0 0 0 1 1 0 0 } E8{ $-\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ } Ph{ $-\frac{1}{2}$ $-\frac{1}{2}$ 0 $-\frac{1}{\sqrt{2}}$ $\frac{1}{2}$ $-\frac{1}{2\sqrt{3}}$ $-\frac{1}{\sqrt{2}}$ $-\frac{1}{\sqrt{6}}$ }	Rt{ 1 0 0 0 0 1 1 1 } Wt{ 1 0 0 0 −1 0 1 0 } Ht 4	Ni 28	Flipped Triad fpi=10 BC_8 L fp_sm=5→77H {{1, 4, 2}, {1, 6, 3}, {1, 7, 5}, {2, 3, 7}, {2, 6, 5}, {3, 5, 4}, {4, 7, 6}} flat triad/mask bits {1, 2, 4, 6, 3, 7, 5} {1, 1, 1, 0, 1, 1, 1} Not Flipped Triad fpi=8 BC_8 L fp_sm=2→7EH {{1, 2, 4}, {1, 5, 3}, {1, 7, 6}, {2, 7, 3}, {2, 6, 5}, {3, 6, 4}, {4, 7, 5}} flat triad/mask bits {1, 2, 4, 5, 3, 7, 6} {0, 1, 1, 1, 1, 1, 1}
33	$\overline{d}^{\,+\to 1/3}_{\vee}$ ${}^{c}d\ L$		{BC8, 6Cube, snubH4Φ 24−3, snubH4Φ 16−3, 6Icosaa, ring8, H4Φring4}	0apggsscc 010010010_2	Bn{ 0 0 0 0 1 0 1 0 } E8{ $-\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ } Ph{ $-\frac{1}{2}$ $-\frac{1}{2}$ 0 $-\frac{1}{\sqrt{2}}$ $\frac{1}{2}$ $-\frac{1}{2\sqrt{3}}$ $\frac{1}{\sqrt{2}}$ $-\frac{1}{\sqrt{6}}$ }	Rt{ 1 0 0 0 0 1 0 1 } Wt{ 1 0 0 0 −1 1 −1 0 } Ht 3	Ti 22	Flipped Triad fpi=12 BC_8 L fp_sm=4→7CH {{1, 2, 4}, {1, 3, 7}, {1, 6, 5}, {2, 6, 3}, {2, 7, 5}, {3, 5, 4}, {4, 7, 6}} flat triad/mask bits {1, 4, 2, 3, 7, 6, 5} {0, 0, 1, 1, 1, 1, 1} Not Flipped Triad fpi=11 BC_8 L fp_sm=1→7FH {{1, 2, 4}, {1, 3, 7}, {1, 6, 5}, {2, 5, 3}, {2, 7, 6}, {3, 6, 4}, {4, 7, 5}} flat triad/mask bits {1, 4, 2, 7, 3, 6, 5} {1, 1, 1, 1, 1, 1, 1}
34	$\overline{d}^{\,1/3}_{\vee}$ ${}^{m}d\ L$		{BC8, snubH4Φ 24−1, snubH4Φ 16−1, 6Icosaa, ring7, H4Φring3}	0apggsscc 010010011_2	Bn{ 0 0 0 0 1 0 0 1 } E8{ $-\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ } Ph{ $-\frac{1}{2}$ $-\frac{1}{2}$ 0 $-\frac{1}{\sqrt{2}}$ $\frac{1}{2}$ $-\frac{1}{2\sqrt{3}}$ 0 $\sqrt{\frac{2}{3}}$ }	Rt{ −1 −1 −2 −3 −4 −4 −2 −3 } Wt{ 1 0 0 0 −1 1 0 −1 } Ht 20	$\overline{\text{Bh}}$ 107	Flipped Triad fpi=13 BC_8 L fp_sm=6→76H {{1, 2, 5}, {1, 4, 3}, {1, 7, 6}, {2, 3, 6}, {2, 7, 4}, {3, 7, 5}, {4, 6, 5}} flat triad/mask bits {1, 5, 2, 4, 3, 7, 6} {0, 1, 1, 0, 1, 1, 1} Not Flipped Triad fpi=14 BC_8 L fp_sm=7→75H {{1, 5, 2}, {1, 3, 4}, {1, 7, 6}, {2, 3, 7}, {2, 6, 4}, {3, 6, 5}, {4, 7, 5}} flat triad/mask bits {1, 5, 2, 3, 4, 7, 6} {1, 0, 1, 0, 1, 1, 1}
134	$\overline{d}^{\,+\to 1/3}_{\vee}$ ${}^{c}m\ R$		{BC8, 6Cube, snubH4Φ 24−3, 6Icosaa, ring8, H4Φring1}	0apggsscc 010011110_2	Bn{ 0 1 1 0 1 0 1 0 } E8{ $-\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ } Ph{ $-\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{\sqrt{2}}$ 0 $\frac{1}{2}$ $-\frac{1}{2\sqrt{3}}$ $\frac{1}{\sqrt{2}}$ $-\frac{1}{\sqrt{6}}$ }	Rt{ 1 0 1 2 2 3 1 2 } Wt{ 0 −1 0 1 −1 1 −1 0 } Ht 12	Os 76	Flipped Triad fpi=12 BC_8 L fp_sm=4→4FH {{1, 4, 2}, {1, 7, 3}, {1, 6, 5}, {2, 6, 3}, {2, 5, 7}, {3, 4, 5}, {4, 7, 6}} flat triad/mask bits {1, 2, 4, 7, 3, 6, 5} {1, 1, 1, 1, 0, 0, 1} Not Flipped Triad fpi=11 BC_8 L fp_sm=1→4CH {{1, 4, 2}, {1, 3, 7}, {1, 6, 5}, {2, 5, 3}, {2, 6, 7}, {3, 4, 6}, {4, 7, 5}} flat triad/mask bits {1, 2, 4, 3, 7, 6, 5} {0, 0, 1, 1, 0, 0, 1}
139	$\overline{u}^{\,0\to -2/3}_{\vee}$ ${}^{r}m\ R$		{BC8, E7, 6Cube, C4, snubH4Φ 24−4, snubH4Φ 16−4, 6Icosaa, ring7, H4Φring3}	0apggsscc 011011101_2	Bn{ 0 1 0 1 1 1 0 0 } E8{ $-\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ } Ph{ $-\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{\sqrt{2}}$ 0 $\frac{1}{2}$ $-\frac{1}{2\sqrt{3}}$ $-\frac{1}{\sqrt{2}}$ $-\frac{1}{\sqrt{6}}$ }	Rt{ 1 0 1 1 2 3 2 2 } Wt{ 0 −1 1 −1 0 0 1 0 } Ht 12	Re 75	Flipped Triad fpi=8 BC_8 R fp_sm=2→4AH {{1, 2, 4}, {1, 5, 3}, {1, 6, 7}, {2, 7, 3}, {2, 5, 6}, {3, 4, 6}, {4, 7, 5}} flat triad/mask bits {1, 4, 2, 5, 3, 6, 7} {0, 1, 0, 1, 0, 0, 1} Not Flipped Triad fpi=10 BC_8 R fp_sm=5→43H {{1, 4, 2}, {1, 6, 3}, {1, 5, 7}, {2, 3, 7}, {2, 5, 6}, {3, 4, 5}, {4, 7, 6}} flat triad/mask bits {1, 4, 2, 6, 3, 5, 7} {1, 1, 0, 0, 0, 0, 1}
145	$t^{\,2/3}_{\vee}$ ${}^{b}d\ L$		{BC8, 6Cube, snubH4Φ 24−4, snubH4Φ 8−4, Idempot, 6Icosaa, ring1, H4Φring1}	0apggsscc 001110011_2	Bn{ 0 1 0 0 1 1 1 0 } E8{ $-\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ } Ph{ $-\frac{1}{2}$ $\frac{1}{2}$ 0 $-\frac{1}{\sqrt{2}}$ $\frac{1}{2}$ $\frac{1}{2\sqrt{3}}$ 0 $-\sqrt{\frac{2}{3}}$ }	Rt{ 1 0 1 1 1 2 1 2 } Wt{ 0 −1 1 0 −1 0 0 1 } Ht 9	Nd 60	Flipped Triad fpi=28 BC_8 R fp_sm=3→05H {{1, 7, 2}, {1, 3, 5}, {1, 6, 4}, {2, 3, 6}, {2, 4, 5}, {3, 4, 7}, {5, 6, 7}} flat triad/mask bits {1, 7, 2, 3, 5, 6, 4} {1, 0, 1, 0, 0, 0, 0} Not Flipped Triad fpi=30 BC_8 R fp_sm=6→0EH {{1, 7, 2}, {1, 6, 3}, {1, 5, 4}, {2, 5, 3}, {2, 4, 6}, {3, 4, 7}, {5, 6, 7}} flat triad/mask bits {1, 2, 7, 6, 3, 5, 4} {0, 1, 1, 1, 0, 0, 0}
151	$\overline{u}^{\,-2/3}_{\vee}$ ${}^{b}d\ L$		{BC8, snubH4Φ 24−1, 6Icosaa, ring1, H4Φring1}	0apggsscc 011010011_2	Bn{ 0 0 1 1 1 0 0 1 } E8{ $-\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ } Ph{ $-\frac{1}{2}$ $-\frac{1}{2}$ 0 $\frac{1}{\sqrt{2}}$ $\frac{1}{2}$ $-\frac{1}{2\sqrt{3}}$ 0 $\sqrt{\frac{2}{3}}$ }	Rt{ −1 −1 −2 −2 −2 −2 −1 −2 } Wt{ 0 0 −1 0 0 1 0 −1 } Ht 13	$\overline{\text{Po}}$ 84	Flipped Triad fpi=14 BC_8 R fp_sm=7→72H {{1, 2, 5}, {1, 4, 3}, {1, 6, 7}, {2, 3, 7}, {2, 6, 4}, {3, 6, 5}, {4, 7, 5}} flat triad/mask bits {1, 5, 2, 4, 3, 6, 7} {0, 1, 0, 0, 1, 1, 1} Not Flipped Triad fpi=13 BC_8 R fp_sm=6→71H {{1, 5, 2}, {1, 3, 4}, {1, 6, 7}, {2, 3, 6}, {2, 7, 4}, {3, 7, 5}, {4, 6, 5}} flat triad/mask bits {1, 5, 2, 3, 4, 6, 7} {1, 0, 0, 0, 1, 1, 1}
157	$t^{\,0\to -2/3}_{\vee}$ ${}^{r}m\ R$		{BC8, E7, snubH4Φ 24−3, 6Icosaa, ring7, H4Φring2}	0apggsscc 001111101_2	Bn{ 0 0 1 0 1 0 1 1 } E8{ $-\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ } Ph{ $-\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{\sqrt{2}}$ 0 $\frac{1}{2}$ $\frac{1}{2\sqrt{3}}$ $\frac{1}{\sqrt{2}}$ $\frac{1}{\sqrt{6}}$ }	Rt{ −1 −1 −2 −2 −3 −3 −2 −2 } Wt{ 0 0 −1 1 −1 1 −1 0 } Ht 16	$\overline{\text{Am}}$ 95	Flipped Triad fpi=26 BC_8 R fp_sm=8→3FH {{1, 7, 2}, {1, 4, 3}, {1, 6, 5}, {2, 6, 3}, {2, 5, 4}, {3, 7, 5}, {4, 6, 7}} flat triad/mask bits {1, 2, 7, 4, 3, 6, 5} {1, 1, 1, 1, 1, 1, 0} Not Flipped Triad fpi=25 BC_8 R fp_sm=5→3CH {{1, 7, 2}, {1, 3, 4}, {1, 6, 5}, {2, 5, 3}, {2, 6, 4}, {3, 7, 6}, {4, 5, 7}} flat triad/mask bits {1, 2, 7, 3, 4, 6, 5} {0, 0, 1, 1, 1, 1, 0}
160	$t^{\,0\to -1/3}_{\wedge}$ ${}^{g}m\ L$		{BC8, snubH4Φ 24−1, Idempot, 6Icosaa, ring7, H4Φring2}	0apggsscc 001111010_2	Bn{ 0 0 0 1 1 1 0 1 } E8{ $-\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ } Ph{ $-\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{\sqrt{2}}$ 0 $\frac{1}{2}$ $\frac{1}{2\sqrt{3}}$ $-\frac{1}{\sqrt{2}}$ $\frac{1}{\sqrt{6}}$ }	Rt{ −1 −1 −2 −3 −3 −3 −1 −2 } Wt{ 0 0 0 −1 0 0 1 0 } Ht 16	$\overline{\text{Cm}}$ 96	Flipped Triad fpi=29 BC_8 R fp_sm=7→20H {{1, 2, 7}, {1, 3, 6}, {1, 4, 5}, {2, 3, 4}, {2, 5, 6}, {3, 7, 5}, {4, 6, 7}} flat triad/mask bits {1, 7, 2, 3, 6, 4, 5} {0, 0, 0, 0, 0, 1, 0} Not Flipped Triad fpi=27 BC_8 R fp_sm=4→29H {{1, 2, 7}, {1, 3, 5}, {1, 4, 6}, {2, 3, 4}, {2, 5, 6}, {3, 7, 6}, {4, 5, 7}} flat triad/mask bits {1, 7, 2, 5, 3, 4, 6} {0, 1, 0, 0, 0, 0, 0}
241	$b^{\,-1/3}_{\vee}$ ${}^{m}d\ L$		{BC8, 6Cube, snubH4Φ 24−2, 6Icosaa, ring7, H4Φring2}	0apggsscc 000110011_2	Bn{ 0 1 1 1 1 1 1 0 } E8{ $-\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ } Ph{ $-\frac{1}{2}$ $\frac{1}{2}$ 0 $\frac{1}{\sqrt{2}}$ $\frac{1}{2}$ $\frac{1}{2\sqrt{3}}$ 0 $-\sqrt{\frac{2}{3}}$ }	Rt{ 1 0 1 2 3 4 2 3 } Wt{ −1 −1 0 0 0 0 0 1 } Ht 16	Np 93	Flipped Triad fpi=30 BC_8 L fp_sm=6→09H {{1, 7, 2}, {1, 3, 6}, {1, 4, 5}, {2, 5, 3}, {2, 4, 6}, {3, 4, 7}, {5, 6, 7}} flat triad/mask bits {1, 2, 7, 3, 6, 4, 5} {1, 0, 0, 1, 0, 0, 0} Not Flipped Triad fpi=28 BC_8 L fp_sm=3→02H {{1, 7, 2}, {1, 5, 3}, {1, 4, 6}, {2, 3, 6}, {2, 4, 5}, {3, 4, 7}, {5, 6, 7}} flat triad/mask bits {1, 7, 2, 5, 3, 4, 6} {0, 1, 0, 0, 0, 0, 0}
242	$b^{\,\to -1/3}_{\vee}$ ${}^{c}d\ L$		{BC8, snubH4Φ 24−2, snubH4Φ 16−2, 6Icosaa, ring8, H4Φring4}	0apggsscc 000110010_2	Bn{ 0 1 1 1 1 1 0 1 } E8{ $-\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ } Ph{ $-\frac{1}{2}$ $\frac{1}{2}$ 0 $\frac{1}{\sqrt{2}}$ $\frac{1}{2}$ $\frac{1}{2\sqrt{3}}$ $-\frac{1}{\sqrt{2}}$ $\frac{1}{\sqrt{6}}$ }	Rt{ −1 −1 −1 −1 −1 −1 0 −1 } Wt{ −1 −1 0 0 0 0 1 0 } Ht 7	$\overline{\text{Sn}}$ 50	Flipped Triad fpi=27 BC_8 L fp_sm=4→03H {{1, 7, 2}, {1, 5, 3}, {1, 4, 6}, {2, 3, 4}, {2, 5, 6}, {3, 6, 7}, {4, 5, 7}} flat triad/mask bits {1, 2, 7, 5, 3, 4, 6} {1, 1, 0, 0, 0, 0, 0} Not Flipped Triad fpi=29 BC_8 L fp_sm=7→0AH {{1, 7, 2}, {1, 6, 3}, {1, 4, 5}, {2, 4, 3}, {2, 5, 6}, {3, 5, 7}, {4, 6, 7}} flat triad/mask bits {1, 2, 7, 6, 3, 4, 5} {0, 1, 0, 1, 0, 0, 0}
243	$b^{\,\to -1/3}$		{BC8, E7, snubH4Φ 24−2,	0apggsscc	Bn{ 0 1 1 1 1 0 1 1 } E8{ $-\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ }	Rt{ −1 −1 −1 −1 −1 −1 −1 −1 } Wt{ −1 −1 0 0 0 1 −1 0 }	$\overline{\text{Ba}}$	Flipped Triad fpi=25 BC_8 L fp_sm=5→08H {{1, 2, 7}, {1, 3, 4}, {1, 5, 6}, {2, 5, 3}, {2, 4, 6}, {3, 6, 7}, {4, 5, 7}} Not Flipped Triad fpi=26 BC_8 L fp_sm=8→0BH {{1, 2, 7}, {1, 4, 3}, {1, 5, 6}, {2, 6, 3}, {2, 4, 5}, {3, 5, 7}, {4, 6, 7}}

Seq #	Symbol	2D/3D Shape	Groups	Particle Quantum Bits	Binary / E8 / Physics Coordinates	Algebra Root Weight / Height / Rt#=Atomic Element Number -->	Ele #	Octonions
243	$\overset{\text{D}}{{}^{\text{o}}_{\text{d}}}\ \overset{\vee}{\text{L}}$		6Icosaa, ring8, H4Φring1}	000110001_2	Ph{ $-\frac{1}{2}$ $\frac{1}{2}$ 0 $\frac{1}{\sqrt{2}}$ $\frac{1}{2}$ $\frac{1}{2\sqrt{3}}$ $\frac{1}{\sqrt{2}}$ $\frac{1}{\sqrt{6}}$ }	Wt{ −1 −1 0 0 0 1 −1 0 } Ht 8	56	flat triad/mask bits {1, 7, 2, 3, 4, 5, 6} {0, 0, 0, 1, 0, 0, 0}

Seq #	Symbol	2D/3D Shape	Groups	Particle Quantum Bits	Coordinates	Weight / Height / Rt#=Atomic Element Number -->	Ele #	Octonions
14	$\overline{\text{b}}\ \overset{+\to+1/3}{{}^{\text{o}}_{\text{d}}}\ \overset{\vee}{\text{L}}$		{BC8, E7, E6(27), 6Cube, C4, snubH4Φ 24−2, 6Icosab, ring8, H4Φring1}	$0apggsscc$ 010110001_2	Bn{ 1 0 0 0 0 1 0 0 } E8{ $\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ } Ph{ $\frac{1}{2}$ $-\frac{1}{2}$ 0 $-\frac{1}{\sqrt{2}}$ $-\frac{1}{2}$ $-\frac{1}{2\sqrt{3}}$ $-\frac{1}{\sqrt{2}}$ $-\frac{1}{\sqrt{6}}$ }	Rt{ 1 1 1 1 1 1 1 1 } Wt{ 1 1 0 0 0 −1 1 0 } Ht 8	Ba 56	Flipped Triad fpi=26 BC_8 L fp_sm=8→74H {{1, 2, 7}, {1, 3, 4}, {1, 6, 5}, {2, 3, 6}, {2, 5, 4}, {3, 7, 5}, {4, 7, 6}} flat triad/mask bits {1, 7, 2, 3, 4, 6, 5} {0, 0, 1, 0, 1, 1, 1} Not Flipped Triad fpi=25 BC_8 L fp_sm=5→77H {{1, 7, 2}, {1, 4, 3}, {1, 6, 5}, {2, 3, 5}, {2, 6, 4}, {3, 7, 6}, {4, 7, 5}} flat triad/mask bits {1, 7, 2, 4, 3, 6, 5} {1, 1, 1, 0, 1, 1, 1}
15	$\overline{\text{b}}\ \overset{+\to+1/3}{{}^{\text{c}}_{\text{d}}}\ \overset{\vee}{\text{L}}$		{BC8, 6Cube, snubH4Φ 24−2, snubH4Φ 16−2, 6Icosab, ring8, H4Φring4}	$0apggsscc$ 010110010_2	Bn{ 1 0 0 0 0 0 1 0 } E8{ $\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ } Ph{ $\frac{1}{2}$ $-\frac{1}{2}$ 0 $-\frac{1}{\sqrt{2}}$ $-\frac{1}{2}$ $-\frac{1}{2\sqrt{3}}$ $\frac{1}{\sqrt{2}}$ $-\frac{1}{\sqrt{6}}$ }	Rt{ 1 1 1 1 1 1 0 1 } Wt{ 1 1 0 0 0 0 −1 0 } Ht 7	Sn 50	Flipped Triad fpi=29 BC_8 L fp_sm=7→75H {{1, 7, 2}, {1, 3, 6}, {1, 5, 4}, {2, 3, 4}, {2, 6, 5}, {3, 7, 5}, {4, 7, 6}} flat triad/mask bits {1, 2, 7, 3, 6, 5, 4} {1, 0, 1, 0, 1, 1, 1} Not Flipped Triad fpi=27 BC_8 L fp_sm=4→7CH {{1, 7, 2}, {1, 3, 5}, {1, 6, 4}, {2, 4, 3}, {2, 6, 5}, {3, 7, 6}, {4, 7, 5}} flat triad/mask bits {1, 2, 7, 3, 5, 6, 4} {0, 0, 1, 1, 1, 1, 1}
16	$\overline{\text{b}}\ \overset{1/3}{{}^{\text{m}}_{\text{d}}}\ \overset{\vee}{\text{L}}$		{BC8, snubH4Φ 24−2, 6Icosab, ring7, H4Φring2}	$0apggsscc$ 010110011_2	Bn{ 1 0 0 0 0 0 0 1 } E8{ $\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ } Ph{ $\frac{1}{2}$ $-\frac{1}{2}$ 0 $-\frac{1}{\sqrt{2}}$ $-\frac{1}{2}$ $-\frac{1}{2\sqrt{3}}$ 0 $\sqrt{\frac{2}{3}}$ }	Rt{ −1 0 −1 −2 −3 −4 −2 −3 } Wt{ 1 1 0 0 0 0 0 −1 } Ht 16	$\overline{\text{Np}}$ 93	Flipped Triad fpi=28 BC_8 L fp_sm=3→7DH {{1, 7, 2}, {1, 3, 5}, {1, 6, 4}, {2, 6, 3}, {2, 5, 4}, {3, 7, 4}, {5, 7, 6}} flat triad/mask bits {1, 7, 2, 3, 5, 6, 4} {1, 0, 1, 1, 1, 1, 1} Not Flipped Triad fpi=30 BC_8 L fp_sm=6→76H {{1, 7, 2}, {1, 6, 3}, {1, 5, 4}, {2, 3, 5}, {2, 6, 4}, {3, 7, 4}, {5, 7, 6}} flat triad/mask bits {1, 2, 7, 6, 3, 5, 4} {0, 1, 1, 0, 1, 1, 1}
97	$\overline{\text{t}}\ \overset{0\to-1/3}{{}^{\text{g}}_{\text{m}}}\ \overset{\wedge}{\text{L}}$		{BC8, 6Cube, snubH4Φ 24−1, Idempot, 6Icosab, ring7, H4Φring2}	$0apggsscc$ 011111010_2	Bn{ 1 1 1 0 0 0 1 0 } E8{ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ } Ph{ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{\sqrt{2}}$ 0 $-\frac{1}{2}$ $-\frac{1}{2\sqrt{3}}$ $\frac{1}{\sqrt{2}}$ $-\frac{1}{\sqrt{6}}$ }	Rt{ 1 1 2 3 3 3 1 2 } Wt{ 0 0 0 1 0 0 −1 0 } Ht 16	Cm 96	Flipped Triad fpi=27 BC_8 R fp_sm=4→56H {{1, 2, 7}, {1, 5, 3}, {1, 6, 4}, {2, 3, 4}, {2, 6, 5}, {3, 6, 7}, {4, 7, 5}} flat triad/mask bits {1, 7, 2, 5, 3, 6, 4} {0, 1, 1, 0, 1, 0, 1} Not Flipped Triad fpi=29 BC_8 R fp_sm=7→5FH {{1, 7, 2}, {1, 6, 3}, {1, 5, 4}, {2, 4, 3}, {2, 6, 5}, {3, 5, 7}, {4, 7, 6}} flat triad/mask bits {1, 7, 2, 6, 3, 5, 4} {1, 1, 1, 1, 1, 0, 1}
100	$\overline{\text{t}}\ \overset{0\to-2/3}{{}^{\text{r}}_{\text{m}}}\ \overset{\vee}{\text{R}}$		{BC8, E7, E6(27), 6Cube, C4, snubH4Φ 24−3, 6Icosab, ring7, H4Φring2}	$0apggsscc$ 011111101_2	Bn{ 1 1 0 1 0 1 0 0 } E8{ $\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ } Ph{ $\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{\sqrt{2}}$ 0 $-\frac{1}{2}$ $-\frac{1}{2\sqrt{3}}$ $-\frac{1}{\sqrt{2}}$ $-\frac{1}{\sqrt{6}}$ }	Rt{ 1 1 2 2 3 3 2 2 } Wt{ 0 0 1 −1 1 −1 1 0 } Ht 16	Am 95	Flipped Triad fpi=25 BC_8 R fp_sm=5→43H {{1, 7, 2}, {1, 4, 3}, {1, 5, 6}, {2, 3, 5}, {2, 4, 6}, {3, 6, 7}, {4, 7, 5}} flat triad/mask bits {1, 2, 7, 4, 3, 5, 6} {1, 1, 0, 0, 0, 0, 1} Not Flipped Triad fpi=26 BC_8 R fp_sm=8→40H {{1, 7, 2}, {1, 3, 4}, {1, 5, 6}, {2, 3, 6}, {2, 4, 5}, {3, 5, 7}, {4, 7, 6}} flat triad/mask bits {1, 2, 7, 3, 4, 5, 6} {0, 0, 0, 0, 0, 0, 1}
106	$\text{u}\ \overset{2/3}{{}^{\text{b}}_{\text{d}}}\ \overset{\vee}{\text{L}}$		{BC8, 6Cube, snubH4Φ 24−1, 6Icosab, ring1, H4Φring1}	$0apggsscc$ 001010011_2	Bn{ 1 1 0 0 0 1 1 0 } E8{ $\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ } Ph{ $\frac{1}{2}$ $\frac{1}{2}$ 0 $-\frac{1}{\sqrt{2}}$ $-\frac{1}{2}$ $\frac{1}{2\sqrt{3}}$ 0 $-\sqrt{\frac{2}{3}}$ }	Rt{ 1 1 2 2 2 2 1 2 } Wt{ 0 0 1 0 0 −1 0 1 } Ht 13	Po 84	Flipped Triad fpi=13 BC_8 R fp_sm=6→0EH {{1, 2, 5}, {1, 4, 3}, {1, 7, 6}, {2, 6, 3}, {2, 4, 7}, {3, 5, 7}, {4, 5, 6}} flat triad/mask bits {1, 5, 2, 4, 3, 7, 6} {0, 1, 1, 1, 0, 0, 0} Not Flipped Triad fpi=14 BC_8 R fp_sm=7→0DH {{1, 5, 2}, {1, 3, 4}, {1, 7, 6}, {2, 7, 3}, {2, 4, 6}, {3, 5, 6}, {4, 5, 7}} flat triad/mask bits {1, 5, 2, 3, 4, 7, 6} {1, 0, 1, 1, 0, 0, 0}
112	$\overline{\text{t}}\ \overset{-2/3}{{}^{\text{b}}_{\text{d}}}\ \overset{\vee}{\text{L}}$		{BC8, snubH4Φ 24−4, snubH4Φ 8−4, Idempot, 6Icosab, ring1, H4Φring1}	$0apggsscc$ 011110011_2	Bn{ 1 0 1 1 0 0 0 1 } E8{ $\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ } Ph{ $\frac{1}{2}$ $-\frac{1}{2}$ 0 $\frac{1}{\sqrt{2}}$ $-\frac{1}{2}$ $-\frac{1}{2\sqrt{3}}$ 0 $\sqrt{\frac{2}{3}}$ }	Rt{ −1 0 −1 −1 −1 −2 −1 −2 } Wt{ 0 1 −1 0 1 0 0 −1 } Ht 9	$\overline{\text{Nd}}$ 60	Flipped Triad fpi=30 BC_8 R fp_sm=6→71H {{1, 7, 2}, {1, 3, 6}, {1, 4, 5}, {2, 3, 5}, {2, 6, 4}, {3, 7, 4}, {5, 7, 6}} flat triad/mask bits {1, 2, 7, 3, 6, 4, 5} {1, 0, 0, 0, 1, 1, 1} Not Flipped Triad fpi=28 BC_8 R fp_sm=3→7AH {{1, 7, 2}, {1, 5, 3}, {1, 4, 6}, {2, 6, 3}, {2, 5, 4}, {3, 7, 4}, {5, 7, 6}} flat triad/mask bits {1, 7, 2, 5, 3, 4, 6} {0, 1, 0, 1, 1, 1, 1}
118	$\text{u}\ \overset{0\to2/3}{{}^{\text{r}}_{\text{m}}}\ \overset{\vee}{\text{R}}$		{BC8, E7, E6(27), snubH4Φ 24−4, snubH4Φ 16−4, 6Icosab, ring7, H4Φring3}	$0apggsscc$ 001011101_2	Bn{ 1 0 1 0 0 0 1 1 } E8{ $\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ } Ph{ $\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{\sqrt{2}}$ 0 $-\frac{1}{2}$ $\frac{1}{2\sqrt{3}}$ $\frac{1}{\sqrt{2}}$ $\frac{1}{\sqrt{6}}$ }	Rt{ −1 0 −1 −1 −2 −3 −2 −2 } Wt{ 0 1 −1 1 0 0 −1 0 } Ht 12	$\overline{\text{Re}}$ 75	Flipped Triad fpi=10 BC_8 R fp_sm=5→3CH {{1, 2, 4}, {1, 3, 6}, {1, 7, 5}, {2, 7, 3}, {2, 6, 5}, {3, 5, 4}, {4, 6, 7}} flat triad/mask bits {1, 4, 2, 3, 6, 7, 5} {0, 0, 1, 1, 1, 1, 0} Not Flipped Triad fpi=8 BC_8 R fp_sm=2→35H {{1, 4, 2}, {1, 3, 5}, {1, 7, 6}, {2, 3, 7}, {2, 6, 5}, {3, 6, 4}, {4, 5, 7}} flat triad/mask bits {1, 4, 2, 3, 5, 7, 6} {1, 0, 1, 0, 1, 1, 0}
123	$\text{d}\ \overset{\to-1/3}{{}^{\text{c}}_{\text{m}}}\ \overset{\vee}{\text{R}}$		{BC8, snubH4Φ 24−3, 6Icosab, ring8, H4Φring1}	$0apggsscc$ 000011110_2	Bn{ 1 0 0 1 0 1 0 1 } E8{ $\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ } Ph{ $\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{\sqrt{2}}$ 0 $-\frac{1}{2}$ $\frac{1}{2\sqrt{3}}$ $-\frac{1}{\sqrt{2}}$ $\frac{1}{\sqrt{6}}$ }	Rt{ −1 0 −1 −2 −2 −3 −1 −2 } Wt{ 0 1 0 −1 1 −1 1 0 } Ht 12	$\overline{\text{Os}}$ 76	Flipped Triad fpi=11 BC_8 L fp_sm=1→33H {{1, 4, 2}, {1, 7, 3}, {1, 5, 6}, {2, 3, 5}, {2, 7, 6}, {3, 6, 4}, {4, 5, 7}} flat triad/mask bits {1, 2, 4, 7, 3, 5, 6} {1, 1, 0, 0, 1, 1, 0} Not Flipped Triad fpi=12 BC_8 L fp_sm=4→30H {{1, 4, 2}, {1, 3, 7}, {1, 5, 6}, {2, 3, 6}, {2, 7, 5}, {3, 5, 4}, {4, 6, 7}} flat triad/mask bits {1, 2, 4, 3, 7, 5, 6} {0, 0, 0, 0, 1, 1, 0}
223	$\text{d}\ \overset{-1/3}{{}^{\text{m}}_{\text{d}}}\ \overset{\vee}{\text{L}}$		{BC8, 6Cube, snubH4Φ 24−1, snubH4Φ 16−1, 6Icosab, ring7, H4Φring3}	$0apggsscc$ 000010011_2	Bn{ 1 1 1 1 0 1 1 0 } E8{ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ } Ph{ $\frac{1}{2}$ $\frac{1}{2}$ 0 $\frac{1}{\sqrt{2}}$ $-\frac{1}{2}$ $\frac{1}{2\sqrt{3}}$ 0 $-\sqrt{\frac{2}{3}}$ }	Rt{ 1 1 2 3 4 4 2 3 } Wt{ −1 0 0 0 1 −1 0 1 } Ht 20	Bh 107	Flipped Triad fpi=14 BC_8 L fp_sm=7→0AH {{1, 2, 5}, {1, 4, 3}, {1, 6, 7}, {2, 7, 3}, {2, 4, 6}, {3, 5, 6}, {4, 5, 7}} flat triad/mask bits {1, 5, 2, 4, 3, 6, 7} {0, 1, 0, 1, 0, 0, 0} Not Flipped Triad fpi=13 BC_8 L fp_sm=6→09H {{1, 5, 2}, {1, 3, 4}, {1, 6, 7}, {2, 6, 3}, {2, 4, 7}, {3, 5, 7}, {4, 5, 6}} flat triad/mask bits {1, 5, 2, 3, 4, 6, 7} {1, 0, 0, 1, 0, 0, 0}
224	$\text{d}\ \overset{\to-1/3}{{}^{\text{c}}_{\text{d}}}\ \overset{\vee}{\text{L}}$		{BC8, snubH4Φ 24−3, snubH4Φ 16−3, 6Icosab, ring8, H4Φring4}	$0apggsscc$ 000010010_2	Bn{ 1 1 1 1 0 1 0 1 } E8{ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ } Ph{ $\frac{1}{2}$ $\frac{1}{2}$ 0 $\frac{1}{\sqrt{2}}$ $-\frac{1}{2}$ $\frac{1}{2\sqrt{3}}$ $-\frac{1}{\sqrt{2}}$ $\frac{1}{\sqrt{6}}$ }	Rt{ −1 0 0 0 0 −1 0 −1 } Wt{ −1 0 0 0 1 −1 1 0 } Ht 3	$\overline{\text{Ti}}$ 22	Flipped Triad fpi=11 BC_8 L fp_sm=1→00H {{1, 2, 4}, {1, 3, 7}, {1, 5, 6}, {2, 3, 5}, {2, 6, 7}, {3, 4, 6}, {4, 5, 7}} flat triad/mask bits {1, 4, 2, 3, 7, 5, 6} {0, 0, 0, 0, 0, 0, 0} Not Flipped Triad fpi=12 BC_8 L fp_sm=4→03H {{1, 4, 2}, {1, 3, 7}, {1, 5, 6}, {2, 3, 6}, {2, 5, 7}, {3, 4, 5}, {4, 6, 7}} flat triad/mask bits {1, 4, 2, 7, 3, 5, 6} {1, 1, 0, 0, 0, 0, 0}
225	$\text{d}\ \overset{\to-1/3}{}$		{BC8, E7, snubH4Φ 24−4, snubH4Φ 8−4,	$0apggsscc$	Bn{ 1 1 1 1 0 0 1 1 } E8{ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $-\frac{1}{2}$ $-\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ }	Rt{ −1 0 0 0 0 −1 −1 −1 } Wt{ −1 0 0 0 1 0 −1 0 }	$\overline{\text{Ni}}$	Flipped Triad fpi=8 BC_8 L fp_sm=2→01H {{1, 4, 2}, {1, 3, 5}, {1, 6, 7}, {2, 3, 7}, {2, 5, 6}, {3, 4, 6}, {4, 5, 7}} Not Flipped Triad fpi=10 BC_8 L fp_sm=5→08H {{1, 2, 4}, {1, 3, 6}, {1, 5, 7}, {2, 7, 3}, {2, 5, 6}, {3, 4, 5}, {4, 6, 7}}

6Icosab, ring7, H4Φring2} 000010001$_2$ Ph{ $\frac{1}{2}$ $\frac{1}{2}$ 0 $\frac{1}{\sqrt{2}}$ $-\frac{1}{2}$ $\frac{1}{2\sqrt{3}}$ $\frac{1}{\sqrt{2}}$ $\frac{1}{\sqrt{6}}$ } Ht 4 28

flat triad/mask bits
{1, 2, 4, 3, 5, 6, 7}
{1, 0, 0, 0, 0, 0, 0}

flat triad/mask bits
{1, 2, 4, 3, 6, 5, 7}
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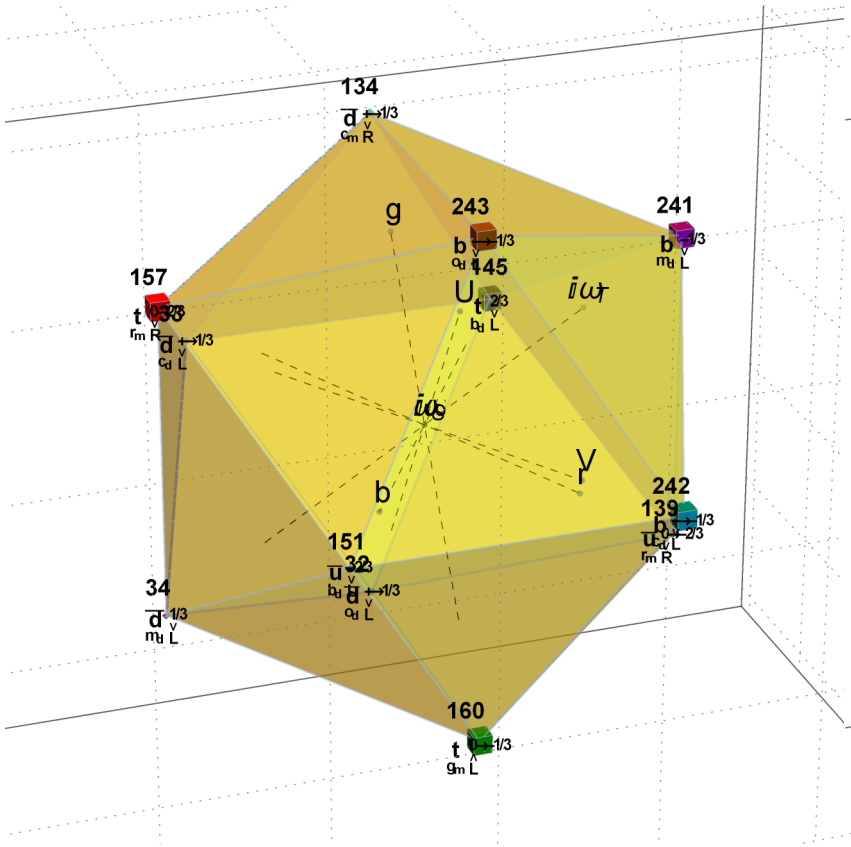

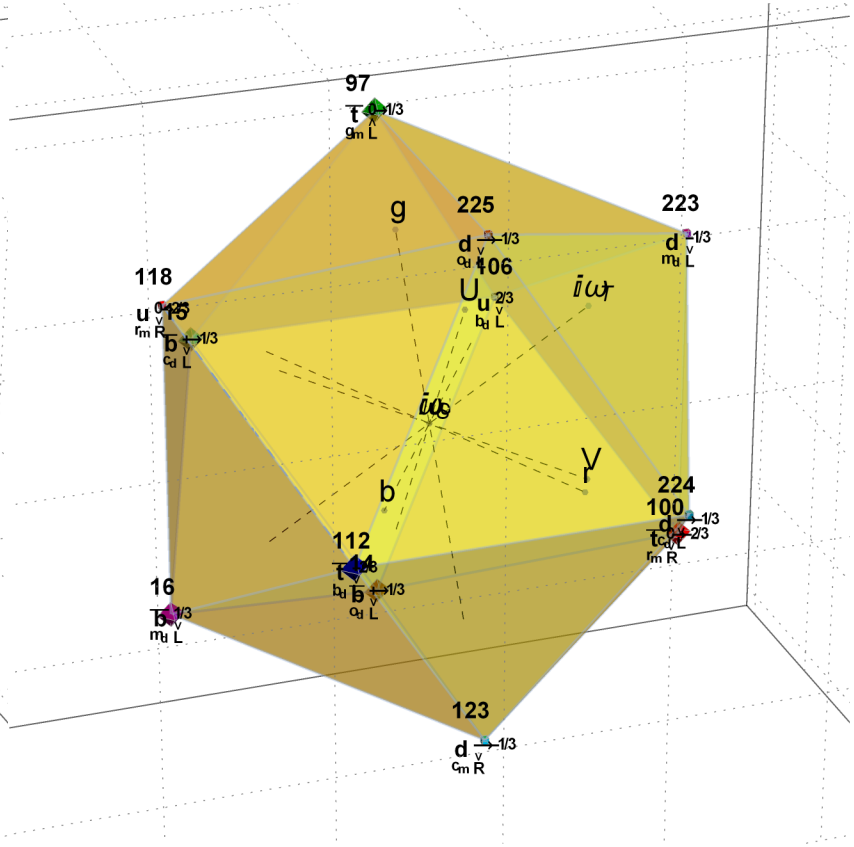

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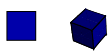
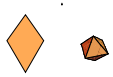
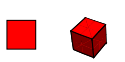
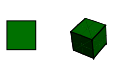
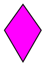
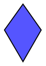
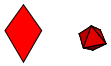
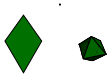
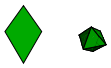
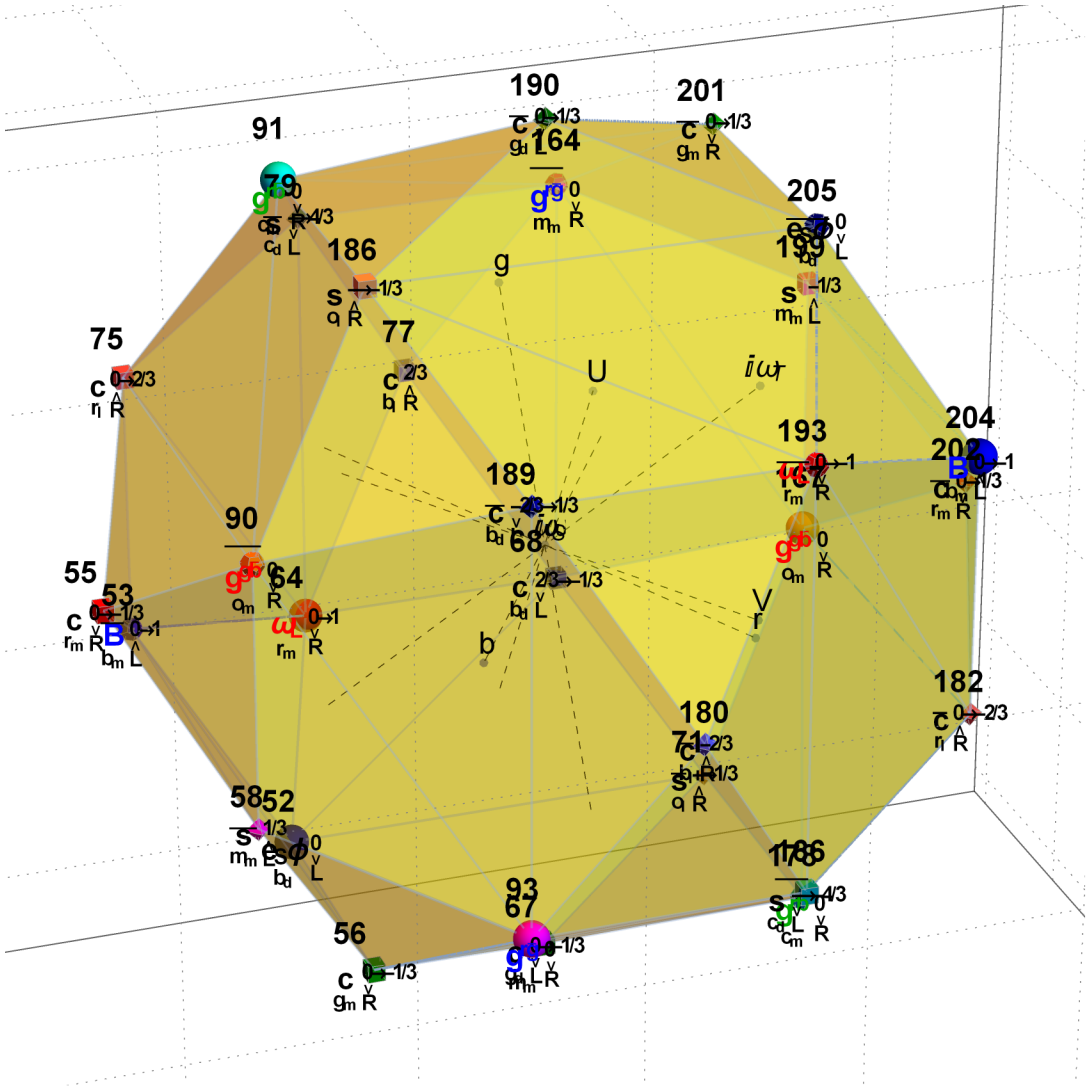
Seq #	Symbol	2D/3D Shape	Groups	Particle Quantum Bits	Binary / E8 / Physics Coordinates	Algebra Root Weight / Height / Rt#=Atomic Element Number -->	Ele #	Octonions
77	$c^{2/3}_{b_l}\ \hat{}\ R$		{D8, E7(56), H4Φcell24, 7Icosadodeca, ring6, H4Φring2}	0apggsscc 001100111_2	Bn{ 0 0 1 1 0 0 0 1 } E8{ 0 0 0 −1 0 0 0 −1 } Ph{ 0 0 $\frac{1}{\sqrt{2}}$ $-\frac{1}{\sqrt{2}}$ 0 $-\frac{1}{\sqrt{3}}$ 0 $-\sqrt{\frac{2}{3}}$ }	Rt{ 2 1 2 3 3 4 2 3 } Wt{ 1 0 0 1 −1 0 0 0 } Ht 20	Hs 108	Flipped Triad fpi=21 D_8 R fp_sm=6→10H {{1, 2, 6}, {1, 3, 5}, {1, 4, 7}, {2, 3, 4}}, {{1, 2, 6}, {1, 3, 5}, {1, 4, 7}, {2, 3, 7}, {2, 7, 5}, {3, 6, 7}, {4, 5, 6}} flat triad/mask bits {1, 6, 2, 3, 5, 4, 7} {0, 0, 0, 0, 1, 0, 0} Not Flipped Triad fpi=22 D_8 R fp_sm=6→10H {{1, 2, 6}, {1, 3, 5}, {1, 4, 7}, {2, 3, 7}, {2, 5, 4}, {3, 4, 6}, {5, 6, 7}} flat triad/mask bits {1, 2, 6, 3, 5, 4, 7} {0, 0, 0, 0, 1, 0, 0}
64	$\omega_L\ \vee\ R$, r_m		{D8, E7, E7(56), D7, E6, D6, E5, D5, D4, D4Dual, F4, snubH4Φ 24−1, 7Icosadodeca, ring8, H4Φring3}	0apggsscc 001001101_2	Bn{ 0 1 0 1 1 0 0 0 } E8{ 0 0 −1 −1 0 0 0 0 } Ph{ 0 0 0 $-\sqrt{2}$ 0 0 0 0 }	Rt{ 0 0 0 −1 −2 −2 −1 −1 } Wt{ 1 0 1 0 −1 0 0 0 } Ht 7	Ru 44	Flipped Triad fpi=2 D_8 R fp_sm=8→3FH {{1, 3, 2}, {1, 5, 4}, {1, 7, 6}, {2, 7, 4}}, {{1, 2, 3}, {1, 4, 5}, {1, 7, 6}, {2, 6, 4}, {2, 6, 5}, {3, 6, 4}, {3, 5, 7}} flat triad/mask bits {1, 2, 3, 5, 4, 7, 6} {1, 1, 1, 1, 1, 1, 0} Not Flipped Triad fpi=1 D_8 R fp_sm=5→3CH {{1, 2, 3}, {1, 4, 5}, {1, 7, 6}, {2, 6, 4}, {2, 7, 5}, {3, 7, 4}, {3, 5, 6}} flat triad/mask bits {1, 2, 3, 4, 5, 7, 6} {0, 0, 1, 1, 1, 1, 0}
79	$\overline{s}^{+\to 4/3}_{c_d}\ \vee\ L$		{D8, D7, snubH4Φ 24−4, snubH4Φ 8−4, 7Icosadodeca, ring8, H4Φring3, a7, a6}	0apggsscc 010100010_2	Bn{ 0 0 1 0 1 0 1 0 } E8{ 0 0 0 −1 0 0 1 0 } Ph{ 0 0 $\frac{1}{\sqrt{2}}$ $-\frac{1}{\sqrt{2}}$ 0 $\frac{1}{\sqrt{3}}$ $\frac{1}{\sqrt{2}}$ $-\frac{1}{\sqrt{6}}$ }	Rt{ 0 0 0 0 −1 −1 −1 0 } Wt{ 0 0 0 1 −1 0 −1 1 } Ht 3	$\overline{\text{Ar}}$ 18	Flipped Triad fpi=20 D_8 L fp_sm=1→7FH {{1, 6, 2}, {1, 4, 3}, {1, 7, 5}, {2, 7, 3}}, {{1, 2, 5}, {1, 7, 3}, {1, 6, 4}, {2, 3, 6}, {2, 5, 4}, {3, 6, 5}, {4, 7, 6}} flat triad/mask bits {1, 2, 6, 4, 3, 7, 5} {1, 1, 1, 1, 1, 1, 1} Not Flipped Triad fpi=18 D_8 L fp_sm=6→76H {{1, 2, 5}, {1, 7, 3}, {1, 6, 4}, {2, 3, 6}, {2, 7, 4}, {3, 5, 4}, {5, 7, 6}} flat triad/mask bits {1, 2, 5, 7, 3, 6, 4} {0, 1, 1, 0, 1, 1, 1}
68	$c^{2/3\to -1/3}_{b_d}\ \vee\ L$		{D8, E7(56), snubH4Φ 24−3, 7Icosadodeca, ring5, H4Φring1}	0apggsscc 001100011_2	Bn{ 0 1 0 0 1 1 0 0 } E8{ 0 0 −1 0 0 0 0 −1 } Ph{ 0 0 $-\frac{1}{\sqrt{2}}$ $-\frac{1}{\sqrt{2}}$ 0 $-\frac{1}{\sqrt{3}}$ 0 $-\sqrt{\frac{2}{3}}$ }	Rt{ 2 1 2 2 3 4 2 3 } Wt{ 1 0 1 −1 0 0 0 0 } Ht 19	Sg 106	Flipped Triad fpi=21 D_8 R fp_sm=6→0EH {{1, 2, 6}, {1, 5, 3}, {1, 7, 4}, {2, 4, 3}}, {{1, 2, 6}, {1, 5, 3}, {1, 7, 4}, {2, 7, 3}, {2, 5, 7}, {3, 6, 7}, {4, 5, 6}} flat triad/mask bits {1, 6, 2, 5, 3, 7, 4} {0, 1, 1, 1, 0, 0, 0} Not Flipped Triad fpi=22 D_8 R fp_sm=6→0EH {{1, 2, 6}, {1, 5, 3}, {1, 7, 4}, {2, 7, 3}, {2, 4, 5}, {3, 4, 6}, {5, 6, 7}} flat triad/mask bits {1, 2, 6, 5, 3, 7, 4} {0, 1, 1, 1, 0, 0, 0}
53	$\overline{B}^{0\to 1}_{b_m}\ \hat{}\ L$		{D8, E7, E7(56), D7, E6, D6, E5, D5, D4, D4Dual, F4, snubH4Φ 24−4, snubH4Φ 8−4, 7Icosadodeca, ring8, H4Φring4}	0apggsscc 011001011_2	Bn{ 1 0 0 0 1 1 0 0 } E8{ 0 −1 0 −1 0 0 0 0 } Ph{ 0 −1 $\frac{1}{\sqrt{2}}$ $-\frac{1}{\sqrt{2}}$ 0 0 0 0 }	Rt{ 0 0 −1 −1 −2 −2 −1 −1 } Wt{ 1 1 −1 1 −1 0 0 0 } Ht 8	$\overline{\text{Sb}}$ 51	Flipped Triad fpi=6 D_8 R fp_sm=6→5CH {{1, 2, 3}, {1, 4, 7}, {1, 6, 5}, {2, 6, 4}}, {{1, 2, 4}, {1, 3, 6}, {1, 7, 5}, {2, 5, 3}, {2, 7, 5}, {3, 4, 5}, {3, 7, 6}} flat triad/mask bits {1, 3, 2, 4, 7, 6, 5} {0, 0, 1, 1, 1, 0, 1} Not Flipped Triad fpi=9 D_8 R fp_sm=6→5CH {{1, 2, 4}, {1, 3, 6}, {1, 7, 5}, {2, 5, 3}, {2, 7, 6}, {3, 4, 7}, {4, 6, 5}} flat triad/mask bits {1, 2, 4, 3, 6, 7, 5} {0, 0, 1, 1, 1, 0, 1}
75	$c^{0\to 2/3}_{r_l}\ \hat{}\ R$		{D8, E7, E7(56), D7, E6(27), D6, snubH4Φ 24−1, 7Icosadodeca, ring8, H4Φring4}	0apggsscc 001100101_2	Bn{ 0 0 1 1 0 1 0 0 } E8{ 0 0 0 −1 0 −1 0 0 } Ph{ 0 0 $\frac{1}{\sqrt{2}}$ $-\frac{1}{\sqrt{2}}$ 0 $-\frac{1}{\sqrt{3}}$ $\frac{1}{\sqrt{2}}$ $\frac{1}{\sqrt{6}}$ }	Rt{ 0 0 0 0 −1 −1 −1 −1 } Wt{ 1 0 0 1 −1 1 −1 −1 } Ht 4	$\overline{\text{V}}$ 23	Flipped Triad fpi=19 D_8 R fp_sm=3→1BH {{1, 6, 2}, {1, 4, 3}, {1, 5, 7}, {2, 5, 3}}, {{1, 2, 5}, {1, 7, 3}, {1, 4, 6}, {2, 3, 4}, {2, 7, 4}, {3, 6, 7}, {4, 5, 6}} flat triad/mask bits {1, 2, 6, 4, 3, 5, 7} {1, 1, 0, 1, 1, 0, 0} Not Flipped Triad fpi=17 D_8 R fp_sm=8→12H {{1, 2, 5}, {1, 7, 3}, {1, 4, 6}, {2, 3, 4}, {2, 7, 6}, {3, 5, 6}, {4, 5, 7}} flat triad/mask bits {1, 2, 5, 7, 3, 4, 6} {0, 1, 0, 0, 1, 0, 0}
52	$e_g\phi^{0}_{b_d}\ \vee\ L$		{D8, E7, E7(56), D7, E6, D6, E5, D5, D4, D4Dual, F4, snubH4Φ 24−3, D3, 7Icosadodeca, ring8, H4Φring2}	0apggsscc 001000011_2	Bn{ 1 0 0 1 0 0 0 1 } E8{ 0 −1 −1 0 0 0 0 0 } Ph{ 0 −1 $-\frac{1}{\sqrt{2}}$ $-\frac{1}{\sqrt{2}}$ 0 0 0 0 }	Rt{ 0 0 −1 −2 −2 −2 −1 −1 } Wt{ 1 1 0 −1 0 0 0 0 } Ht 9	$\overline{\text{La}}$ 57	Flipped Triad fpi=9 D_8 R fp_sm=6→0EH {{1, 2, 4}, {1, 6, 3}, {1, 7, 5}, {2, 5, 3}}, {{1, 2, 3}, {1, 7, 4}, {1, 6, 5}, {2, 6, 4}, {2, 6, 7}, {3, 4, 7}, {4, 5, 6}} flat triad/mask bits {1, 4, 2, 6, 3, 7, 5} {0, 1, 1, 1, 0, 0, 0} Not Flipped Triad fpi=6 D_8 R fp_sm=6→0EH {{1, 2, 3}, {1, 7, 4}, {1, 6, 5}, {2, 6, 4}, {2, 5, 7}, {3, 4, 5}, {3, 6, 7}} flat triad/mask bits {1, 2, 3, 7, 4, 6, 5} {0, 1, 1, 1, 0, 0, 0}
91	$g^{\overline{r}b}_{c_m}\ \vee\ R$		{D8, D7, F4, snubH4Φ 24−2, G2s, 7Icosadodeca, ring8, H4Φring2, a7, a6}	0apggsscc 000001111_2	Bn{ 0 0 0 0 1 1 0 1 } E8{ 0 0 0 0 0 −1 1 0 } Ph{ 0 0 0 0 0 0 $\sqrt{2}$ 0 }	Rt{ 0 0 0 0 0 0 −1 0 } Wt{ 0 0 0 0 0 1 −2 0 } Ht 1	$\overline{\text{He}}$ 2	Flipped Triad fpi=3 D_8 L fp_sm=4→30H {{1, 2, 3}, {1, 4, 6}, {1, 5, 7}, {2, 4, 5}}, {{1, 3, 2}, {1, 4, 7}, {1, 5, 6}, {2, 5, 4}, {2, 7, 6}, {3, 7, 4}, {3, 5, 6}} flat triad/mask bits {1, 3, 2, 4, 6, 5, 7} {0, 0, 0, 0, 1, 1, 0} Not Flipped Triad fpi=5 D_8 L fp_sm=7→39H {{1, 3, 2}, {1, 4, 7}, {1, 5, 6}, {2, 5, 4}, {2, 7, 6}, {3, 6, 4}, {3, 5, 7}} flat triad/mask bits {1, 3, 2, 4, 7, 5, 6} {1, 0, 0, 1, 1, 1, 0}
71	$\overline{s}^{+\to 1/3}_{c_l}\ \hat{}\ R$		{D8, E7, D7, E6(27), D6, snubH4Φ 24−1, snubH4Φ 16−1, 7Icosadodeca, ring7, H4Φring1, a7, a6, a5}	0apggsscc 010100101_2	Bn{ 0 1 0 0 0 1 1 0 } E8{ 0 0 −1 0 0 1 0 0 } Ph{ 0 0 $-\frac{1}{\sqrt{2}}$ $-\frac{1}{\sqrt{2}}$ 0 $\frac{1}{\sqrt{3}}$ $-\frac{1}{\sqrt{2}}$ $-\frac{1}{\sqrt{6}}$ }	Rt{ 0 0 0 −1 −1 −1 0 0 } Wt{ 0 0 1 −1 0 −1 1 1 } Ht 3	$\overline{\text{K}}$ 19	Flipped Triad fpi=19 D_8 L fp_sm=3→63H {{1, 6, 2}, {1, 4, 3}, {1, 5, 7}, {2, 3, 5}}, {{1, 2, 5}, {1, 7, 3}, {1, 4, 6}, {2, 4, 3}, {2, 4, 7}, {3, 7, 6}, {4, 6, 5}} flat triad/mask bits {1, 2, 6, 4, 3, 5, 7} {1, 1, 0, 0, 0, 1, 1} Not Flipped Triad fpi=17 D_8 L fp_sm=8→6AH {{1, 2, 5}, {1, 7, 3}, {1, 4, 6}, {2, 4, 3}, {2, 6, 7}, {3, 6, 5}, {4, 7, 5}} flat triad/mask bits {1, 2, 5, 7, 3, 4, 6} {0, 1, 0, 1, 0, 1, 1}
55	$c^{0\to -1/3}_{r_m}\ \vee\ R$		{D8, E7, E7(56), D7, E6(27), D6, H4Φcell24, 7Icosadodeca, ring7, H4Φring3}	0apggsscc 001101101_2	Bn{ 1 0 0 0 1 0 0 1 } E8{ 0 −1 0 0 0 −1 0 0 } Ph{ 0 −1 0 0 0 $-\frac{1}{\sqrt{3}}$ $\frac{1}{\sqrt{2}}$ $\frac{1}{\sqrt{6}}$ }	Rt{ 0 0 −1 −1 −1 −1 −1 −1 } Wt{ 1 1 −1 0 0 1 −1 −1 } Ht 6	$\overline{\text{Sr}}$ 38	Flipped Triad fpi=19 D_8 R fp_sm=3→36H {{1, 2, 6}, {1, 4, 3}, {1, 7, 5}, {2, 3, 5}}, {{1, 5, 2}, {1, 7, 3}, {1, 6, 4}, {2, 4, 3}, {2, 7, 4}, {3, 7, 6}, {4, 5, 6}} flat triad/mask bits {1, 6, 2, 4, 3, 7, 5} {0, 1, 1, 0, 1, 1, 0} Not Flipped Triad fpi=17 D_8 R fp_sm=8→3FH {{1, 2, 5}, {1, 7, 3}, {1, 6, 4}, {2, 4, 3}, {2, 7, 6}, {3, 6, 5}, {4, 5, 7}} flat triad/mask bits {1, 5, 2, 7, 3, 6, 4} {1, 1, 1, 1, 1, 1, 0}
67	$c^{0\to -1/3}_{g_d}\ \vee\ L$		{D8, E7(56), D7, H4Φcell24, 7Icosadodeca, ring8, H4Φring1}	0apggsscc 001100010_2	Bn{ 0 1 0 1 0 0 0 1 } E8{ 0 0 −1 0 0 0 −1 0 } Ph{ 0 0 $-\frac{1}{\sqrt{2}}$ $-\frac{1}{\sqrt{2}}$ 0 $-\frac{1}{\sqrt{3}}$ $-\frac{1}{\sqrt{2}}$ $\frac{1}{\sqrt{6}}$ }	Rt{ 0 0 0 −1 −1 −1 0 −1 } Wt{ 1 0 1 −1 0 0 1 −1 } Ht 4	$\overline{\text{Cr}}$ 24	Flipped Triad fpi=20 D_8 R fp_sm=1→07H {{1, 6, 2}, {1, 4, 3}, {1, 7, 5}, {2, 3, 7}}, {{1, 2, 5}, {1, 7, 3}, {1, 6, 4}, {2, 6, 3}, {2, 4, 5}, {3, 5, 6}, {4, 6, 7}} flat triad/mask bits {1, 2, 6, 4, 3, 7, 5} {1, 1, 1, 0, 0, 0, 0} Not Flipped Triad fpi=18 D_8 R fp_sm=6→0EH {{1, 2, 5}, {1, 7, 3}, {1, 6, 4}, {2, 6, 3}, {2, 4, 7}, {3, 4, 5}, {5, 6, 7}} flat triad/mask bits {1, 2, 5, 7, 3, 6, 4} {0, 1, 1, 1, 0, 0, 0}
56	$c^{0\to -1/3}$		{D8, E7(56), D7, snubH4Φ 24−4, snubH4Φ 16−4,	0apggsscc	Bn{ 1 0 0 0 0 1 1 0 } E8{ 0 −1 0 0 0 0 −1 0 } Ph{	Rt{ 0 0 −1 −1 −1 −1 0 −1 } Wt{ 1 1 −1 0 0 0 1 −1 }	$\overline{\text{Ge}}$	Flipped Triad fpi=20 D_8 R fp_sm=1→34H {{1, 2, 6}, {1, 3, 4}, {1, 7, 5}, {2, 3, 7}}, {{1, 5, 2}, {1, 3, 7}, {1, 6, 4}, {2, 6, 3}, {2, 5, 4}, {3, 6, 5}, {4, 6, 7}} Not Flipped Triad fpi=18 D_8 R fp_sm=6→3DH {{1, 2, 6}, {1, 3, 4}, {1, 7, 5}, {2, 3, 7}}, {{1, 5, 2}, {1, 3, 7}, {1, 6, 4}, {2, 6, 3}, {2, 7, 4}, {3, 5, 4}, {5, 6, 7}}

Out[2278]=

	c g_m $\overset{\vee}{\text{R}}$			snubH4Φ 16−4, 7Icosadodeca, ring7, H4Φring1}	001101110_2	Ph{ 0 −1 0 0 0 $-\frac{1}{\sqrt{3}}$ $-\frac{1}{\sqrt{2}}$ $\frac{1}{\sqrt{6}}$ }	Wt{ 1 1 −1 0 0 0 1 −1 } Ht 5	32	flat triad/mask bits {1, **6**, **2**, 3, 4, 7, 5} {0, 0, 1, 0, 1, 1, 0}	flat triad/mask bits {1, 5, 2, 3, 7, 6, 4} {1, 0, 1, 1, 1, 1, 0}
58	$\overline{\text{s}}$ 1/3 m_m $\overset{\wedge}{\text{L}}$			{D8, snubH4Φ 24−3, snubH4Φ 16−3, 7Icosadodeca, ring3, H4Φring1, a7}	0apggsscc 010101011_2	Bn{ 1 0 0 0 0 0 1 1 } E8{ 0 −1 0 0 0 0 0 1 } Ph{ 0 −1 0 0 0 $\frac{1}{\sqrt{3}}$ 0 $\sqrt{\frac{2}{3}}$ }	Rt{ −2 −1 −3 −4 −5 −6 −3 −4 } Wt{ 0 1 −1 0 0 0 0 0 } Ht 28	$\overline{\text{Uue}}$ 119	Flipped Triad fpi=21 D_8 L fp_sm=6→5BH {{1, 6, 2}, {1, 5, 3}, {1, 4, 7}, {2, 4, 3}, {2, 7, 5}, {3, 6, 7}, {4, 6, 5}} flat triad/mask bits {1, **2**, **6**, 5, 3, 4, 7} {1, 1, 0, 1, 1, 0, 1}	Not Flipped Triad fpi=22 D_8 L fp_sm=6→5BH {{1, 6, 2}, {1, 5, 3}, {1, 4, 7}, {2, 7, 3}, {2, 5, 4}, {3, 4, 6}, {5, 7, 6}} flat triad/mask bits {1, 6, 2, 5, 3, 4, 7} {1, 1, 0, 1, 1, 0, 1}
90	$\overline{\text{g}^{\text{g}\bar{\text{b}}}}$ 0 o_m $\overset{\vee}{\text{R}}$			{D8, F4, snubH4Φ 24−2, snubH4Φ 16−2, G2s, 7Icosadodeca, ring3, H4Φring1, a7}	0apggsscc 010001110_2	Bn{ 0 0 0 0 1 1 1 0 } E8{ 0 0 0 0 0 −1 0 1 } Ph{ 0 0 0 0 0 0 $\frac{1}{\sqrt{2}}$ $\sqrt{\frac{3}{2}}$ }	Rt{ −2 −1 −2 −3 −4 −5 −3 −4 } Wt{ 0 0 0 0 0 1 −1 −1 } Ht 24	$\overline{\text{Uup}}$ 115	Flipped Triad fpi=2 D_8 L fp_sm=8→47H {{1, 3, 2}, {1, 5, 4}, {1, 7, 6}, {2, 4, 7}, {2, 5, 6}, {3, 4, 6}, {3, 7, 5}} flat triad/mask bits {1, **2**, **3**, 5, 4, 7, 6} {1, 1, 1, 0, 0, 0, 1}	Not Flipped Triad fpi=1 D_8 L fp_sm=5→44H {{1, 2, 3}, {1, 4, 5}, {1, 7, 6}, {2, 4, 6}, {2, 5, 7}, {3, 4, 7}, {3, 6, 5}} flat triad/mask bits {1, 2, 3, 4, 5, 7, 6} {0, 0, 1, 0, 0, 0, 1}
93	$\text{g}^{\text{r}\bar{\text{g}}}$ 0 m_m $\overset{\vee}{\text{R}}$			{D8, F4, snubH4Φ 24−2, G2s, 7Icosadodeca, ring5, H4Φring1, a7}	0apggsscc 000001101_2	Bn{ 0 0 0 0 0 1 1 1 } E8{ 0 0 0 0 0 0 −1 1 } Ph{ 0 0 0 0 0 0 $-\frac{1}{\sqrt{2}}$ $\sqrt{\frac{3}{2}}$ }	Rt{ −2 −1 −2 −3 −4 −5 −2 −4 } Wt{ 0 0 0 0 0 0 1 −1 } Ht 23	$\overline{\text{Uut}}$ 113	Flipped Triad fpi=6 D_8 L fp_sm=6→3AH {{1, 2, 3}, {1, 7, 4}, {1, 5, 6}, {2, 6, 4}, {2, 7, 5}, {3, 5, 4}, {3, 6, 7}} flat triad/mask bits {1, **3**, **2**, 7, 4, 5, 6} {0, 1, 0, 1, 1, 1, 0}	Not Flipped Triad fpi=9 D_8 L fp_sm=6→3AH {{1, 2, 4}, {1, 6, 3}, {1, 5, 7}, {2, 5, 3}, {2, 7, 6}, {3, 7, 4}, {4, 5, 6}} flat triad/mask bits {1, 2, 4, 6, 3, 5, 7} {0, 1, 0, 1, 1, 1, 0}
180	$\overline{\text{c}}$ −2/3 b_l $\overset{\wedge}{\text{R}}$			{D8, E7(56), H4Φcell24, 7Icosadodeca, ring6, H4Φring2}	0apggsscc 011100111_2	Bn{ 1 1 0 0 1 1 1 0 } E8{ 0 0 0 1 0 0 0 1 } Ph{ 0 0 $-\frac{1}{\sqrt{2}}$ $\frac{1}{\sqrt{2}}$ 0 $\frac{1}{\sqrt{3}}$ 0 $\sqrt{\frac{2}{3}}$ }	Rt{ −2 −1 −2 −3 −3 −4 −2 −3 } Wt{ −1 0 0 −1 1 0 0 0 } Ht 20	$\overline{\text{Hs}}$ 108	Flipped Triad fpi=22 D_8 R fp_sm=6→6FH {{1, 6, 2}, {1, 5, 3}, {1, 7, 4}, {2, 7, 3}, {2, 4, 5}, {3, 6, 4}, {5, 7, 6}} flat triad/mask bits {1, **2**, **6**, 5, 3, 7, 4} {1, 1, 1, 1, 0, 1, 1}	Not Flipped Triad fpi=21 D_8 R fp_sm=6→6FH {{1, 6, 2}, {1, 5, 3}, {1, 7, 4}, {2, 4, 3}, {2, 5, 7}, {3, 7, 6}, {4, 6, 5}} flat triad/mask bits {1, 6, 2, 5, 3, 7, 4} {1, 1, 1, 1, 0, 1, 1}
193	$\overline{\omega_\text{L}}$ 0→−1 r_m $\overset{\vee}{\text{R}}$			{D8, E7, E7(56), D7, E6, D6, E5, D5, D4, D4Dual, F4, snubH4Φ 24−1, 7Icosadodeca, ring8, H4Φring3}	0apggsscc 011001101_2	Bn{ 1 0 1 0 0 1 1 1 } E8{ 0 0 1 1 0 0 0 0 } Ph{ 0 0 0 $\sqrt{2}$ 0 0 0 0 }	Rt{ 0 0 0 1 2 2 1 1 } Wt{ −1 0 −1 0 1 0 0 0 } Ht 7	Ru 44	Flipped Triad fpi=1 D_8 R fp_sm=5→43H {{1, 3, 2}, {1, 5, 4}, {1, 6, 7}, {2, 4, 6}, {2, 5, 7}, {3, 4, 7}, {3, 6, 5}} flat triad/mask bits {1, **2**, **3**, 5, 4, 6, 7} {1, 1, 0, 0, 0, 0, 1}	Not Flipped Triad fpi=2 D_8 R fp_sm=8→40H {{1, 2, 3}, {1, 4, 5}, {1, 6, 7}, {2, 4, 7}, {2, 5, 6}, {3, 4, 6}, {3, 7, 5}} flat triad/mask bits {1, 2, 3, 4, 5, 6, 7} {0, 0, 0, 0, 0, 0, 1}
178	s −→−4/3 c_d $\overset{\vee}{\text{L}}$			{D8, D7, snubH4Φ 24−4, snubH4Φ 8−4, 7Icosadodeca, ring8, H4Φring3, a7, a6}	0apggsscc 000100010_2	Bn{ 1 1 0 1 0 1 0 1 } E8{ 0 0 0 1 0 0 −1 0 } Ph{ 0 0 $-\frac{1}{\sqrt{2}}$ $\frac{1}{\sqrt{2}}$ 0 $-\frac{1}{\sqrt{3}}$ $-\frac{1}{\sqrt{2}}$ $\frac{1}{\sqrt{6}}$ }	Rt{ 0 0 0 0 1 1 1 0 } Wt{ 0 0 0 −1 1 0 1 −1 } Ht 3	Ar 18	Flipped Triad fpi=18 D_8 L fp_sm=6→09H {{1, 5, 2}, {1, 3, 7}, {1, 4, 6}, {2, 6, 3}, {2, 4, 7}, {3, 4, 5}, {5, 6, 7}} flat triad/mask bits {1, **2**, **5**, 3, 7, 4, 6} {1, 0, 0, 1, 0, 0, 0}	Not Flipped Triad fpi=20 D_8 L fp_sm=1→00H {{1, 2, 6}, {1, 3, 4}, {1, 5, 7}, {2, 3, 7}, {2, 4, 5}, {3, 5, 6}, {4, 6, 7}} flat triad/mask bits {1, 2, 6, 3, 4, 5, 7} {0, 0, 0, 0, 0, 0, 0}
189	$\overline{\text{c}}$ −2/3→1/3 b_d $\overset{\vee}{\text{L}}$			{D8, E7(56), snubH4Φ 24−3, 7Icosadodeca, ring5, H4Φring1}	0apggsscc 011100011_2	Bn{ 1 0 1 1 0 0 1 1 } E8{ 0 0 1 0 0 0 0 1 } Ph{ 0 0 $\frac{1}{\sqrt{2}}$ $\frac{1}{\sqrt{2}}$ 0 $\frac{1}{\sqrt{3}}$ 0 $\sqrt{\frac{2}{3}}$ }	Rt{ −2 −1 −2 −2 −3 −4 −2 −3 } Wt{ −1 0 −1 1 0 0 0 0 } Ht 19	$\overline{\text{Sg}}$ 106	Flipped Triad fpi=22 D_8 R fp_sm=6→71H {{1, 6, 2}, {1, 3, 5}, {1, 4, 7}, {2, 3, 7}, {2, 5, 4}, {3, 6, 4}, {5, 7, 6}} flat triad/mask bits {1, **2**, **6**, 3, 5, 4, 7} {1, 0, 0, 0, 1, 1, 1}	Not Flipped Triad fpi=21 D_8 R fp_sm=6→71H {{1, 6, 2}, {1, 3, 5}, {1, 4, 7}, {2, 3, 4}, {2, 7, 5}, {3, 7, 6}, {4, 6, 5}} flat triad/mask bits {1, 6, 2, 3, 5, 4, 7} {1, 0, 0, 0, 1, 1, 1}
204	B 0→−1 b_m $\overset{\wedge}{\text{L}}$			{D8, E7, E7(56), D7, E6, D6, E5, D5, D4, D4Dual, F4, snubH4Φ 24−4, snubH4Φ 8−4, 7Icosadodeca, ring8, H4Φring4}	0apggsscc 001001011_2	Bn{ 0 1 1 1 0 0 1 1 } E8{ 0 1 0 1 0 0 0 0 } Ph{ 0 1 $-\frac{1}{\sqrt{2}}$ $\frac{1}{\sqrt{2}}$ 0 0 0 0 }	Rt{ 0 0 1 1 2 2 1 1 } Wt{ −1 −1 1 −1 1 0 0 0 } Ht 8	Sb 51	Flipped Triad fpi=9 D_8 R fp_sm=6→23H {{1, 4, 2}, {1, 6, 3}, {1, 5, 7}, {2, 3, 5}, {2, 6, 7}, {3, 7, 4}, {4, 5, 6}} flat triad/mask bits {1, **2**, **4**, 6, 3, 5, 7} {1, 1, 0, 0, 0, 1, 0}	Not Flipped Triad fpi=6 D_8 R fp_sm=6→23H {{1, 3, 2}, {1, 7, 4}, {1, 5, 6}, {2, 4, 6}, {2, 5, 7}, {3, 5, 4}, {3, 6, 7}} flat triad/mask bits {1, 3, 2, 7, 4, 5, 6} {1, 1, 0, 0, 0, 1, 0}
182	$\overline{\text{c}}$ 0→−2/3 r_l $\overset{\wedge}{\text{R}}$			{D8, E7, E7(56), D7, D6, snubH4Φ 24−1, 7Icosadodeca, ring8, H4Φring4}	0apggsscc 011100101_2	Bn{ 1 1 0 0 1 0 1 1 } E8{ 0 0 0 1 0 1 0 0 } Ph{ 0 0 $-\frac{1}{\sqrt{2}}$ $\frac{1}{\sqrt{2}}$ 0 $\frac{1}{\sqrt{3}}$ $-\frac{1}{\sqrt{2}}$ $-\frac{1}{\sqrt{6}}$ }	Rt{ 0 0 0 0 1 1 1 1 } Wt{ −1 0 0 −1 1 −1 1 1 } Ht 4	V 23	Flipped Triad fpi=17 D_8 R fp_sm=8→6DH {{1, 5, 2}, {1, 3, 7}, {1, 6, 4}, {2, 4, 3}, {2, 6, 7}, {3, 6, 5}, {4, 7, 5}} flat triad/mask bits {1, **2**, **5**, 3, 7, 6, 4} {1, 0, 1, 1, 0, 1, 1}	Not Flipped Triad fpi=19 D_8 R fp_sm=3→64H {{1, 2, 6}, {1, 3, 4}, {1, 7, 5}, {2, 3, 5}, {2, 4, 7}, {3, 7, 6}, {4, 6, 5}} flat triad/mask bits {1, 2, 6, 3, 4, 7, 5} {0, 0, 1, 0, 0, 1, 1}
205	$\overline{\text{e}_\text{S}\phi}$ 0 b_d $\overset{\vee}{\text{L}}$			{D8, E7, E7(56), D7, E6, D6, E5, D5, D4, D4Dual, F4, snubH4Φ 24−3, D3, 7Icosadodeca, ring8, H4Φring2}	0apggsscc 011000011_2	Bn{ 0 1 1 0 1 1 1 0 } E8{ 0 1 1 0 0 0 0 0 } Ph{ 0 1 $\frac{1}{\sqrt{2}}$ $\frac{1}{\sqrt{2}}$ 0 0 0 0 }	Rt{ 0 0 1 2 2 2 1 1 } Wt{ −1 −1 0 1 0 0 0 0 } Ht 9	La 57	Flipped Triad fpi=6 D_8 R fp_sm=6→71H {{1, 3, 2}, {1, 4, 7}, {1, 5, 6}, {2, 4, 6}, {2, 7, 5}, {3, 5, 4}, {3, 7, 6}} flat triad/mask bits {1, **2**, **3**, 4, 7, 5, 6} {1, 0, 0, 0, 1, 1, 1}	Not Flipped Triad fpi=9 D_8 R fp_sm=6→71H {{1, 4, 2}, {1, 3, 6}, {1, 5, 7}, {2, 3, 5}, {2, 7, 6}, {3, 7, 4}, {4, 6, 5}} flat triad/mask bits {1, 4, 2, 3, 6, 5, 7} {1, 0, 0, 0, 1, 1, 1}
166	$\overline{\text{g}^{\text{r}\bar{\text{b}}}}$ 0 c_m $\overset{\vee}{\text{R}}$			{D8, D7, F4, snubH4Φ 24−2, G2s, 7Icosadodeca, ring8, H4Φring2, a7, a6}	0apggsscc 010001111_2	Bn{ 1 1 1 1 0 0 1 0 } E8{ 0 0 0 0 0 1 −1 0 } Ph{ 0 0 0 0 0 0 $-\sqrt{2}$ 0 }	Rt{ 0 0 0 0 0 0 1 0 } Wt{ 0 0 0 0 0 −1 2 0 } Ht 1	He 2	Flipped Triad fpi=5 D_8 L fp_sm=7→46H {{1, 2, 3}, {1, 7, 4}, {1, 6, 5}, {2, 4, 5}, {2, 6, 7}, {3, 4, 6}, {3, 7, 5}} flat triad/mask bits {1, **3**, **2**, 7, 4, 6, 5} {0, 1, 1, 0, 0, 0, 1}	Not Flipped Triad fpi=3 D_8 L fp_sm=4→4FH {{1, 3, 2}, {1, 6, 4}, {1, 7, 5}, {2, 5, 4}, {2, 6, 7}, {3, 4, 7}, {3, 6, 5}} flat triad/mask bits {1, 3, 2, 6, 4, 7, 5} {1, 1, 1, 1, 0, 0, 1}
186	s −→−1/3 o_l $\overset{\wedge}{\text{R}}$			{D8, E7, D7, D6, snubH4Φ 24−1, snubH4Φ 16−1, 7Icosadodeca, ring7, H4Φring1, a7, a6, a5}	0apggsscc 000100101_2	Bn{ 1 0 1 1 1 0 0 1 } E8{ 0 0 1 0 0 −1 0 0 } Ph{ 0 0 $\frac{1}{\sqrt{2}}$ $\frac{1}{\sqrt{2}}$ 0 $-\frac{1}{\sqrt{3}}$ $\frac{1}{\sqrt{2}}$ $\frac{1}{\sqrt{6}}$ }	Rt{ 0 0 0 1 1 1 0 0 } Wt{ 0 0 −1 1 0 1 −1 −1 } Ht 3	K 19	Flipped Triad fpi=17 D_8 L fp_sm=8→15H {{1, 5, 2}, {1, 3, 7}, {1, 6, 4}, {2, 3, 4}, {2, 7, 6}, {3, 5, 6}, {4, 5, 7}} flat triad/mask bits {1, **2**, **5**, 3, 7, 6, 4}	Not Flipped Triad fpi=19 D_8 L fp_sm=3→1CH {{1, 2, 6}, {1, 3, 4}, {1, 7, 5}, {2, 5, 3}, {2, 7, 4}, {3, 6, 7}, {4, 5, 6}} flat triad/mask bits {1, 2, 6, 3, 4, 7, 5}

a7, a6, a5}

202	$\overline{c}_{r_m}^{\,0\to 1/3}\,\vee\,R$		{D8, E7, E7(56), D7, D6, H4Φcell24, 7Icosadodeca, ring7, H4Φring3}	0_{apggsscc} 011101101_2	Bn{ E8{ Ph{	0 0 0	1 1 1	1 0 0	1 0 0	0 0 0	1 1 $\frac{1}{\sqrt{3}}$	1 0 $-\frac{1}{\sqrt{2}}$	0 0 $-\frac{1}{\sqrt{6}}$	} } }	Rt{ Wt{ Ht	0 −1 6	0 −1	1 1	1 0	1 0	1 −1	1 1	1 1	}	Sr 38	Flipped {1, 0, 1, 0, 1, 0, 0} Triad fpi=17 D_8 R fp_sm=8→40H {{1, 2, 5}, {1, 3, 7}, {1, 4, 6}, {2, 3, 4}, {2, 6, 7}, {3, 5, 6}, {4, 7, 5}} flat triad/mask bits {1, 5, 2, 3, 7, 4, 6} {0, 0, 0, 0, 0, 0, 1}	Not Flipped {0, 0, 1, 1, 1, 0, 0} Triad fpi=19 D_8 R fp_sm=3→49H {{1, 6, 2}, {1, 3, 4}, {1, 5, 7}, {2, 5, 3}, {2, 4, 7}, {3, 6, 7}, {4, 6, 5}} flat triad/mask bits {1, 6, 2, 3, 4, 5, 7} {1, 0, 0, 1, 0, 0, 1}
190	$\overline{c}_{s_d}^{\,0\to 1/3}\,\vee\,L$		{D8, E7(56), D7, H4Φcell24, 7Icosadodeca, ring8, H4Φring1}	0_{apggsscc} 011100010_2	Bn{ E8{ Ph{	1 0 0	0 0 0	1 1 $\frac{1}{\sqrt{2}}$	0 0 $\frac{1}{\sqrt{2}}$	1 0 0	1 0 $\frac{1}{\sqrt{3}}$	1 1 $\frac{1}{\sqrt{2}}$	0 0 $-\frac{1}{\sqrt{6}}$	} } }	Rt{ Wt{ Ht	0 −1 4	0 0	0 −1	1 1	1 0	1 0	0 −1	1 1	}	Cr 24	Flipped {1, 0, 1, 0, 1, 1, 1} Triad fpi=18 D_8 R fp_sm=6→71H {{1, 5, 2}, {1, 3, 7}, {1, 4, 6}, {2, 3, 6}, {2, 7, 4}, {3, 5, 4}, {5, 7, 6}} flat triad/mask bits {1, 2, 5, 3, 7, 4, 6} {1, 0, 0, 0, 1, 1, 1}	Not Flipped {0, 0, 0, 1, 1, 1, 1} Triad fpi=20 D_8 R fp_sm=1→78H {{1, 2, 6}, {1, 3, 4}, {1, 5, 7}, {2, 7, 3}, {2, 5, 4}, {3, 6, 5}, {4, 7, 6}} flat triad/mask bits {1, 2, 6, 3, 4, 5, 7} {0, 0, 0, 1, 1, 1, 1}
201	$\overline{c}_{s_m}^{\,0\to 1/3}\,\vee\,R$		{D8, E7(56), D7, snubH4Φ 24−4, snubH4Φ 16−4, 7Icosadodeca, ring7, H4Φring1}	0_{apggsscc} 011101110_2	Bn{ E8{ Ph{	0 0 0	1 1 1	1 0 0	1 0 0	1 0 0	0 0 $\frac{1}{\sqrt{3}}$	0 1 $\frac{1}{\sqrt{2}}$	1 0 $-\frac{1}{\sqrt{6}}$	} } }	Rt{ Wt{ Ht	0 −1 5	0 −1	1 1	1 0	1 0	1 0	0 −1	1 1	}	Ge 32	Flipped {1, 0, 1, 0, 1, 1, 1} Triad fpi=18 D_8 R fp_sm=6→42H {{1, 2, 5}, {1, 7, 3}, {1, 4, 6}, {2, 3, 6}, {2, 4, 7}, {3, 4, 5}, {5, 7, 6}} flat triad/mask bits {1, 5, 2, 7, 3, 4, 6} {0, 1, 0, 0, 0, 0, 1}	Not Flipped {0, 0, 0, 1, 1, 1, 1} Triad fpi=20 D_8 R fp_sm=1→4BH {{1, 6, 2}, {1, 4, 3}, {1, 5, 7}, {2, 7, 3}, {2, 4, 5}, {3, 5, 6}, {4, 7, 6}} flat triad/mask bits {1, 6, 2, 4, 3, 5, 7} {1, 1, 0, 1, 0, 0, 1}
199	$s_{m_m}^{\,-1/3}\,\wedge\,L$		{D8, snubH4Φ 24−3, snubH4Φ 16−3, 7Icosadodeca, ring3, H4Φring1, a7}	0_{apggsscc} 000101011_2	Bn{ E8{ Ph{	0 0 0	1 1 1	1 0 0	1 0 0	1 0 0	1 0 $-\frac{1}{\sqrt{3}}$	0 0 0	0 −1 $-\sqrt{\frac{2}{3}}$	} } }	Rt{ Wt{ Ht	2 0 28	1 −1	3 1	4 0	5 0	6 0	3 0	4 0	}	Uue 119	Flipped {1, 0, 1, 0, 1, 0, 0} Triad fpi=22 D_8 L fp_sm=6→24H {{1, 2, 6}, {1, 3, 5}, {1, 7, 4}, {2, 3, 7}, {2, 4, 5}, {3, 6, 4}, {5, 6, 7}} flat triad/mask bits {1, 6, 2, 3, 5, 7, 4} {0, 0, 1, 0, 0, 1, 0}	Not Flipped {0, 0, 1, 0, 0, 1, 0} Triad fpi=21 D_8 L fp_sm=6→24H {{1, 2, 6}, {1, 3, 5}, {1, 7, 4}, {2, 3, 4}, {2, 5, 7}, {3, 7, 6}, {4, 5, 6}} flat triad/mask bits {1, 2, 6, 3, 5, 7, 4} {0, 0, 1, 0, 0, 1, 0}
167	$\overline{s_g}\,\overline{s_h}\,{}_{o_m}^{\,0}\,\vee\,R$		{D8, F4, snubH4Φ 24−2, snubH4Φ 16−2, G2s, 7Icosadodeca, ring3, H4Φring1, a7}	0_{apggsscc} 000001110_2	Bn{ E8{ Ph{	1 0 0	1 0 0	1 0 0	1 0 0	0 0 0	0 1 0	0 0 $-\frac{1}{\sqrt{2}}$	1 −1 $-\sqrt{\frac{3}{2}}$	} } }	Rt{ Wt{ Ht	2 0 24	1 0	2 0	3 0	4 0	5 −1	3 1	4 1	}	Uup 115	Flipped {1, 1, 0, 1, 1, 1, 0} Triad fpi=1 D_8 L fp_sm=5→3BH {{1, 3, 2}, {1, 5, 4}, {1, 6, 7}, {2, 6, 4}, {2, 7, 5}, {3, 7, 4}, {3, 5, 6}} flat triad/mask bits {1, 2, 3, 5, 4, 6, 7} {1, 1, 0, 1, 1, 1, 0}	Not Flipped {0, 0, 0, 1, 1, 1, 0} Triad fpi=2 D_8 L fp_sm=8→38H {{1, 2, 3}, {1, 4, 5}, {1, 6, 7}, {2, 7, 4}, {2, 6, 5}, {3, 6, 4}, {3, 5, 7}} flat triad/mask bits {1, 2, 3, 4, 5, 6, 7} {0, 0, 0, 1, 1, 1, 0}
164	$\overline{s_g}\,\overline{s_h}\,{}_{m_m}^{\,0}\,\vee\,R$		{D8, F4, snubH4Φ 24−2, G2s, 7Icosadodeca, ring5, H4Φring1, a7}	0_{apggsscc} 010001101_2	Bn{ E8{ Ph{	1 0 0	1 0 0	1 0 0	1 0 0	1 0 0	0 0 0	0 1 $\frac{1}{\sqrt{2}}$	0 −1 $-\sqrt{\frac{3}{2}}$	} } }	Rt{ Wt{ Ht	2 0 23	1 0	2 0	3 0	4 0	5 0	2 −1	4 1	}	Uut 113	Flipped {1, 0, 1, 0, 0, 0, 1} Triad fpi=9 D_8 L fp_sm=6→45H {{1, 4, 2}, {1, 3, 6}, {1, 7, 5}, {2, 3, 5}, {2, 6, 7}, {3, 4, 7}, {4, 6, 5}} flat triad/mask bits {1, 2, 4, 3, 6, 7, 5} {1, 0, 1, 0, 0, 0, 1}	Not Flipped {0, 0, 1, 1, 1, 0, 0} Triad fpi=6 D_8 L fp_sm=6→45H {{1, 3, 2}, {1, 4, 7}, {1, 6, 5}, {2, 4, 6}, {2, 5, 7}, {3, 4, 5}, {3, 7, 6}} flat triad/mask bits {1, 3, 2, 4, 7, 6, 5} {1, 0, 1, 0, 0, 0, 1}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