SAMB for "Th"

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• Generation condition

model type: tight_bindingtime-reversal type: electric

irrep: [Ag]spinful

• Kets: dimension = 64

Table 1: Hilbert space for full matrix.

| No. | ket |
|-----|------------------------------------|-----|------------------------------------|-----|------------------------------------|-----|------------------------------------|-----|------------------------------------|
| 1 | (s,\uparrow) @A ₁ | 2 | (s,\downarrow) @A ₁ | 3 | (p_x,\uparrow) @A ₁ | 4 | (p_x,\downarrow) @A ₁ | 5 | (p_y,\uparrow) @A ₁ |
| 6 | (p_y,\downarrow) @A ₁ | 7 | (p_z,\uparrow) @A ₁ | 8 | (p_z,\downarrow) @A ₁ | 9 | (s,\uparrow) @A ₂ | 10 | (s,\downarrow) @A ₂ |
| 11 | (p_x,\uparrow) @A ₂ | 12 | (p_x,\downarrow) @A ₂ | 13 | (p_y,\uparrow) @A ₂ | 14 | (p_y,\downarrow) @A ₂ | 15 | (p_z,\uparrow) @ A_2 |
| 16 | (p_z,\downarrow) @A ₂ | 17 | (s,\uparrow) @A ₃ | 18 | (s,\downarrow) @A ₃ | 19 | (p_x,\uparrow) @A ₃ | 20 | (p_x,\downarrow) @A ₃ |
| 21 | (p_y,\uparrow) @A ₃ | 22 | (p_y,\downarrow) @A ₃ | 23 | (p_z,\uparrow) @A ₃ | 24 | (p_z,\downarrow) @A ₃ | 25 | (s,\uparrow) @A ₄ |
| 26 | (s,\downarrow) @A ₄ | 27 | (p_x,\uparrow) @A ₄ | 28 | (p_x,\downarrow) @A ₄ | 29 | (p_y,\uparrow) @A ₄ | 30 | (p_y,\downarrow) @A ₄ |
| 31 | (p_z,\uparrow) @ A_4 | 32 | (p_z,\downarrow) @A ₄ | 33 | (s,\uparrow) @A ₅ | 34 | (s,\downarrow) @A ₅ | 35 | (p_x,\uparrow) @A ₅ |
| 36 | (p_x,\downarrow) @A ₅ | 37 | (p_y,\uparrow) @A ₅ | 38 | (p_y,\downarrow) @A ₅ | 39 | (p_z,\uparrow) @A ₅ | 40 | (p_z,\downarrow) @A ₅ |
| 41 | (s,\uparrow) @A ₆ | 42 | (s,\downarrow) @A ₆ | 43 | (p_x,\uparrow) @A ₆ | 44 | (p_x,\downarrow) @A ₆ | 45 | (p_y,\uparrow) @A ₆ |
| 46 | (p_y,\downarrow) @A ₆ | 47 | (p_z,\uparrow) @A ₆ | 48 | (p_z,\downarrow) @A ₆ | 49 | (s,\uparrow) @A ₇ | 50 | (s,\downarrow) @A ₇ |
| 51 | (p_x,\uparrow) @A ₇ | 52 | (p_x,\downarrow) @A ₇ | 53 | (p_y,\uparrow) @A ₇ | 54 | (p_y,\downarrow) @A ₇ | 55 | (p_z,\uparrow) @A ₇ |
| 56 | (p_z,\downarrow) @A ₇ | 57 | (s,\uparrow) @A ₈ | 58 | (s,\downarrow) @A ₈ | 59 | (p_x,\uparrow) @A ₈ | 60 | (p_x,\downarrow) @A ₈ |
| 61 | (p_y,\uparrow) @A ₈ | 62 | (p_y,\downarrow) @A ₈ | 63 | (p_z,\uparrow) @A ₈ | 64 | (p_z,\downarrow) @A ₈ | | |

• Sites in (primitive) unit cell:

Table 2: Site-clusters.

| | site | position | mapping |
|-------|-------|---|--------------|
| S_1 | A_1 | $\begin{pmatrix} 1 & 1 & 1 \end{pmatrix}$ | [1,5,9] |
| | A_2 | $\begin{pmatrix} -1 & -1 & 1 \end{pmatrix}$ | [2,6,11] |
| | A_3 | $\begin{pmatrix} 1 & -1 & -1 \end{pmatrix}$ | [3,7,12] |
| | A_4 | $\begin{pmatrix} -1 & 1 & -1 \end{pmatrix}$ | [4,8,10] |
| | A_5 | $\begin{pmatrix} 1 & -1 & -1 \end{pmatrix}$ | [13,17,21] |
| | A_6 | $\begin{pmatrix} 1 & 1 & -1 \end{pmatrix}$ | [14,18,23] |
| | A_7 | $\begin{pmatrix} -1 & 1 & 1 \end{pmatrix}$ | [15, 19, 24] |
| | A_8 | $\begin{pmatrix} 1 & -1 & 1 \end{pmatrix}$ | [16,20,22] |

• Bonds in (primitive) unit cell:

Table 3: Bond-clusters.

| | bond | tail | head | n | # | b@c | mapping |
|-------|----------|-------|-------|---|---|---|----------|
| B_1 | b_1 | A_1 | A_6 | 1 | 1 | $\begin{pmatrix} 0 & 0 & -2 \end{pmatrix} @ \begin{pmatrix} 1 & 1 & 0 \end{pmatrix}$ | [1,-14] |
| | b_2 | A_2 | A_5 | 1 | 1 | $\begin{pmatrix} 0 & 0 & -2 \end{pmatrix} \otimes \begin{pmatrix} -1 & -1 & 0 \end{pmatrix}$ | [2,-13] |
| | b_3 | A_3 | A_8 | 1 | 1 | $\begin{pmatrix} & & & & & \\ & & & & & \\ & & & & & \end{pmatrix} \begin{pmatrix} & & & \\ & & & & \\ & & & & \\ & & & & \end{pmatrix} \begin{pmatrix} & & & \\ & & & \\ & & & \\ & & & \end{pmatrix}$ | [3,-16] |
| | b_4 | A_4 | A_7 | 1 | 1 | $\begin{pmatrix} 0 & 0 & 2 \end{pmatrix} @ \begin{pmatrix} -1 & 1 & 0 \end{pmatrix}$ | [4,-15] |
| | b_5 | A_1 | A_7 | 1 | 1 | $\begin{pmatrix} -2 & 0 & 0 \end{pmatrix} $ $ \begin{pmatrix} 0 & 1 & 1 \end{pmatrix} $ | [5,-19] |
| | b_6 | A_2 | A_8 | 1 | 1 | $\begin{pmatrix} 2 & 0 & 0 \end{pmatrix} \hat{\mathbb{Q}} \begin{pmatrix} 0 & -1 & 1 \end{pmatrix}$ | [6,-20] |
| | b_7 | A_3 | A_5 | 1 | 1 | $\begin{pmatrix} -2 & 0 & 0 \end{pmatrix} @ \begin{pmatrix} 0 & -1 & -1 \end{pmatrix}$ | [7,-17] |
| | b_8 | A_4 | A_6 | 1 | 1 | $\begin{pmatrix} \begin{pmatrix} 2 & 0 & 0 \end{pmatrix} & \begin{pmatrix} 0 & 1 & -1 \end{pmatrix} \end{pmatrix}$ | [8,-18] |
| | b_9 | A_1 | A_8 | 1 | 1 | $\begin{pmatrix} 0 & -2 & 0 \end{pmatrix} $ $ \begin{pmatrix} 1 & 0 & 1 \end{pmatrix} $ | [9,-22] |
| | b_{10} | A_4 | A_5 | 1 | 1 | $\begin{pmatrix} 0 & -2 & 0 \end{pmatrix} \begin{pmatrix} 0 & -1 & 0 & -1 \end{pmatrix}$ | [10,-21] |
| | b_{11} | A_2 | A_7 | 1 | 1 | $\begin{pmatrix} & & & & & \\ & & & & & \\ & & & & & \\ & & & & \\ & & & & \\ & & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ \end{pmatrix}$ | [11,-24] |

Table 3

| bond | tail | head | n | # | b@c | mapping |
|----------|-------|-------|---|---|---|----------|
| b_{12} | A_3 | A_6 | 1 | 1 | $\begin{pmatrix} 0 & 2 & 0 \end{pmatrix} $ $ \begin{pmatrix} 1 & 0 & -1 \end{pmatrix} $ | [12,-23] |

• SAMB:

No. 1
$$\hat{\mathbb{Q}}_0^{(A_g)}$$
 [M₁, S₁]

$$\hat{\mathbb{Z}}_1 = \mathbb{X}_1[\mathbb{Q}_0^{(a,A_g)}] \otimes \mathbb{U}_1[\mathbb{Q}_0^{(s,A_g)}]$$

No. 2
$$\hat{\mathbb{Q}}_0^{(A_g)}$$
 [M₂, S₁]

$$\hat{\mathbb{Z}}_2 = \frac{\sqrt{3}\mathbb{X}_5[\mathbb{Q}_{1,0}^{(a,T_u)}] \otimes \mathbb{U}_2[\mathbb{Q}_{1,0}^{(s,T_u)}]}{3} + \frac{\sqrt{3}\mathbb{X}_6[\mathbb{Q}_{1,1}^{(a,T_u)}] \otimes \mathbb{U}_3[\mathbb{Q}_{1,1}^{(s,T_u)}]}{3} + \frac{\sqrt{3}\mathbb{X}_7[\mathbb{Q}_{1,2}^{(a,T_u)}] \otimes \mathbb{U}_4[\mathbb{Q}_{1,2}^{(s,T_u)}]}{3}$$

No. 3
$$\hat{\mathbb{Q}}_0^{(A_g)}(1,0)$$
 [M₂, S₁]

$$\hat{\mathbb{Z}}_{3} = \frac{\sqrt{3}\mathbb{X}_{10}[\mathbb{Q}_{1,2}^{(a,T_{u})}(1,0)] \otimes \mathbb{U}_{4}[\mathbb{Q}_{1,2}^{(s,T_{u})}]}{3} + \frac{\sqrt{3}\mathbb{X}_{8}[\mathbb{Q}_{1,0}^{(a,T_{u})}(1,0)] \otimes \mathbb{U}_{2}[\mathbb{Q}_{1,0}^{(s,T_{u})}]}{3} + \frac{\sqrt{3}\mathbb{X}_{9}[\mathbb{Q}_{1,1}^{(a,T_{u})}(1,0)] \otimes \mathbb{U}_{3}[\mathbb{Q}_{1,1}^{(s,T_{u})}]}{3} + \frac{\sqrt{3}\mathbb{Q}_{1,1}^{(a,T_{u})}(1,0)}{3} + \frac{\sqrt{3}\mathbb{Q}_{1,$$

No. 4
$$\hat{\mathbb{G}}_{3}^{(A_g)}(1,-1)$$
 [M₂, S₁]

$$\hat{\mathbb{Z}}_{4} = \frac{\sqrt{3}\mathbb{X}_{11}[\mathbb{G}_{2,0}^{(a,T_{u})}(1,-1)] \otimes \mathbb{U}_{2}[\mathbb{Q}_{1,0}^{(s,T_{u})}]}{3} + \frac{\sqrt{3}\mathbb{X}_{12}[\mathbb{G}_{2,1}^{(a,T_{u})}(1,-1)] \otimes \mathbb{U}_{3}[\mathbb{Q}_{1,1}^{(s,T_{u})}]}{3} + \frac{\sqrt{3}\mathbb{X}_{13}[\mathbb{G}_{2,2}^{(a,T_{u})}(1,-1)] \otimes \mathbb{U}_{4}[\mathbb{Q}_{1,2}^{(s,T_{u})}]}{3} + \frac{\sqrt{3}\mathbb{X}_{13}[\mathbb{Q}_{2,2}^{(a,T_{u})}(1,-1)] \otimes \mathbb{U}_{4}[\mathbb{Q}_{1,2}^{(s,T_{u})}]}{3} + \frac{\sqrt{3}\mathbb{X}_{13}[\mathbb{Q}_{2,2}^{(a,T_{u})}(1,-1)] \otimes \mathbb{Q}_{4}[\mathbb{Q}_{1,2}^{(s,T_{u})}]}{3} + \frac{\sqrt{3}\mathbb{X}_{13}[\mathbb{Q}_{2,2}^{(a,T_{u})}(1,-1)] \otimes \mathbb{Q}_{4}[\mathbb{Q}_{2,2}^{(s,T_{u})}]}{3} + \frac{\sqrt{3}\mathbb{X}_{13}[\mathbb{Q}_{2,2}^{(a,T_{u})}(1,-1)] \otimes \mathbb{Q}_{4}[\mathbb{Q}_{2,2}^{(s,T_{u})}]}{3} + \frac{\sqrt{3}\mathbb{X}_{13}[\mathbb{Q}_{2,2}^{(a,T_{u})}(1,-1)] \otimes \mathbb{Q}_{4}[\mathbb{Q}_{2,2}^{(s,T_{u})}]}{3} + \frac{\sqrt{3}\mathbb{X}_{13}[\mathbb{Q}_{2,2}^{(s,T_{u})}(1,-1)] \otimes \mathbb{Q}_{4}[\mathbb{Q}_{2,2}^{(s,T_{u})}(1,-1)]}{3} + \frac{\sqrt{3}\mathbb{X}_{13}[\mathbb{Q}_{2,2}^{(s,T_{u})}(1,-1)]}{3} + \frac{\sqrt{3}\mathbb{X}_{13}[\mathbb{Q}_{2,2}^{(s,T_{$$

No. 5
$$\hat{\mathbb{G}}_{3}^{(A_g)}(1,1)$$
 [M₂, S₁]

$$\hat{\mathbb{Z}}_5 = \mathbb{X}_{14}[\mathbb{G}_0^{(a,A_u)}(1,1)] \otimes \mathbb{U}_8[\mathbb{Q}_3^{(s,A_u)}]$$

No. 6
$$\hat{\mathbb{Q}}_0^{(A_g)}$$
 [M₃, S₁]

$$\hat{\mathbb{Z}}_6 = \mathbb{X}_{15}[\mathbb{Q}_0^{(a,A_g)}] \otimes \mathbb{U}_1[\mathbb{Q}_0^{(s,A_g)}]$$

No. 7
$$\hat{\mathbb{Q}}_0^{(A_g)}(1,1)$$
 [M₃, S₁]

$$\hat{\mathbb{Z}}_7 = \mathbb{X}_{16}[\mathbb{Q}_0^{(a,A_g)}(1,1)] \otimes \mathbb{U}_1[\mathbb{Q}_0^{(s,A_g)}]$$

No. 8
$$\hat{\mathbb{Q}}_0^{(A_g)}$$
 [M₃, S₁]

$$\hat{\mathbb{Z}}_8 = \frac{\sqrt{3}\mathbb{X}_{19}[\mathbb{Q}_{2,0}^{(a,T_g)}] \otimes \mathbb{U}_{5}[\mathbb{Q}_{2,0}^{(s,T_g)}]}{3} + \frac{\sqrt{3}\mathbb{X}_{20}[\mathbb{Q}_{2,1}^{(a,T_g)}] \otimes \mathbb{U}_{6}[\mathbb{Q}_{2,1}^{(s,T_g)}]}{3} + \frac{\sqrt{3}\mathbb{X}_{21}[\mathbb{Q}_{2,2}^{(a,T_g)}] \otimes \mathbb{U}_{7}[\mathbb{Q}_{2,2}^{(s,T_g)}]}{3} + \frac{\sqrt{3}\mathbb{X}_{21}[\mathbb{Q}_{2,2}^{(s,T_g)}] \otimes \mathbb{U}_{7}[\mathbb{Q}_{2,2}^{(s,T_g)}]}{3} + \frac{\sqrt{3}\mathbb{X}_{21}[\mathbb{Q}_{2,2}^{(s$$

No. 9
$$\hat{\mathbb{Q}}_0^{(A_g)}(1,-1)$$
 [M₃, S₁]

$$\hat{\mathbb{Z}}_9 = \frac{\sqrt{3}\mathbb{X}_{24}[\mathbb{Q}_{2,0}^{(a,T_g)}(1,-1)] \otimes \mathbb{U}_5[\mathbb{Q}_{2,0}^{(s,T_g)}]}{3} + \frac{\sqrt{3}\mathbb{X}_{25}[\mathbb{Q}_{2,1}^{(a,T_g)}(1,-1)] \otimes \mathbb{U}_6[\mathbb{Q}_{2,1}^{(s,T_g)}]}{3} + \frac{\sqrt{3}\mathbb{X}_{26}[\mathbb{Q}_{2,2}^{(a,T_g)}(1,-1)] \otimes \mathbb{U}_7[\mathbb{Q}_{2,2}^{(s,T_g)}]}{3} + \frac{\sqrt{3}\mathbb{X}_{26}[\mathbb{Q}_{2,2}^{(a,T_g)}(1,-1)] \otimes \mathbb{U}_7[\mathbb{Q}_{2,2}^{(a,T_g)}]}{3} + \frac{\sqrt{3}\mathbb{X}_{26}[\mathbb{Q}_{2,2}^{(a,T_g)}(1,-1)] \otimes \mathbb{U}_7[\mathbb{Q}_2]}{3} + \frac{\sqrt{3}\mathbb{X}_{26}[\mathbb{Q}_2]}{3} + \frac{\sqrt{3}$$

No. 10
$$\hat{\mathbb{G}}_{3}^{(A_g)}(1,0)$$
 [M₃, S₁]

$$\hat{\mathbb{Z}}_{10} = \frac{\sqrt{3}\mathbb{X}_{27}[\mathbb{G}_{1,0}^{(a,T_g)}(1,0)] \otimes \mathbb{U}_{5}[\mathbb{Q}_{2,0}^{(s,T_g)}]}{3} + \frac{\sqrt{3}\mathbb{X}_{28}[\mathbb{G}_{1,1}^{(a,T_g)}(1,0)] \otimes \mathbb{U}_{6}[\mathbb{Q}_{2,1}^{(s,T_g)}]}{3} + \frac{\sqrt{3}\mathbb{X}_{29}[\mathbb{G}_{1,2}^{(a,T_g)}(1,0)] \otimes \mathbb{U}_{7}[\mathbb{Q}_{2,2}^{(s,T_g)}]}{3} + \frac{\sqrt{3}\mathbb{X}_{29}[\mathbb{Q}_{1,2}^{(a,T_g)}(1,0)] \otimes \mathbb{U}_{7}[\mathbb{Q}_{2,2}^{(s,T_g)}]}{3} + \frac{\sqrt{3}\mathbb{X}_{29}[\mathbb{Q}_{1,2}^{(s,T_g)}(1,0)] \otimes \mathbb{U}_{7}[\mathbb{Q}_{2,2}^{(s,T_g)}(1,0)]}{3} + \frac{\sqrt{3}\mathbb{X}_{29}[\mathbb{Q}_{1,2}^{(s,T_g)}(1,0)] \otimes \mathbb{U}_{7}[\mathbb{Q}_{1,2}^{(s,T_g)}(1,0)]}{3} + \frac{\sqrt{3}\mathbb{X}_{29}[\mathbb{Q}_{1,2}^{(s,T_g)}(1,0)] \otimes \mathbb{U}_{7}[\mathbb{Q}_{1,2}^{(s,T_g)}(1,0)]}{3} + \frac{\sqrt{3}\mathbb{X}_{29}[\mathbb{Q}_{1,2}^{(s,T_g)}(1,0)] \otimes \mathbb{Q}_{7}[\mathbb{Q}_{1,2}^{(s,T_g)}(1,0)]}{3} + \frac{\sqrt{3}\mathbb{X}_{29}[\mathbb{Q}_{1,2}^{(s,T_g)}(1,0)] \otimes \mathbb{Q}_{7}[\mathbb{Q}_{1,2}^{(s,T_g)}(1,0)]}{3} + \frac{\sqrt{3}\mathbb{X}_{29}[\mathbb{Q}_{1,2}^{(s,T_g)}(1,0)] \otimes \mathbb{Q}_{7}[\mathbb{Q}_{1,2}^{(s,T_g)}(1,0)]}{3} + \frac{\sqrt{3}\mathbb{X}_{29}[\mathbb{Q}_{1,2}^{(s,T_g)}(1,0)] \otimes \mathbb{Q}_{7}[\mathbb{Q}_{1,2}^{(s,T_g)}(1,0)]}{3} + \frac{\sqrt{3}\mathbb{X}_{29}[\mathbb{Q}_{1,2}$$

No. 11
$$\hat{\mathbb{Q}}_0^{(A_g)}$$
 [M₁, B₁]

$$\hat{\mathbb{Z}}_{11} = \mathbb{X}_1[\mathbb{Q}_0^{(a,A_g)}] \otimes \mathbb{U}_9[\mathbb{Q}_0^{(u,A_g)}]$$

No. 12
$$\hat{\mathbb{G}}_{3}^{(A_g)}(1,-1)$$
 [M₁, B₁]

$$\hat{\mathbb{Z}}_{12} = \frac{\sqrt{3}\mathbb{X}_2[\mathbb{M}_{1,0}^{(a,T_g)}(1,-1)]\otimes\mathbb{U}_{21}[\mathbb{T}_{2,0}^{(u,T_g)}]}{3} + \frac{\sqrt{3}\mathbb{X}_3[\mathbb{M}_{1,1}^{(a,T_g)}(1,-1)]\otimes\mathbb{U}_{22}[\mathbb{T}_{2,1}^{(u,T_g)}]}{3} + \frac{\sqrt{3}\mathbb{X}_4[\mathbb{M}_{1,2}^{(a,T_g)}(1,-1)]\otimes\mathbb{U}_{23}[\mathbb{T}_{2,2}^{(u,T_g)}]}{3} + \frac{\sqrt{3}\mathbb{X}_4[\mathbb{M}_{1,2}^{(a,T_g)}(1,-1)]\otimes\mathbb{U}_{23}[\mathbb{T}_{2,2}^{(u,T_g)}]}{3} + \frac{\sqrt{3}\mathbb{X}_4[\mathbb{M}_{1,2}^{(a,T_g)}(1,-1)]\otimes\mathbb{U}_{23}[\mathbb{T}_{2,2}^{(u,T_g)}]}{3} + \frac{\sqrt{3}\mathbb{X}_4[\mathbb{M}_{1,2}^{(a,T_g)}(1,-1)]\otimes\mathbb{U}_{23}[\mathbb{T}_{2,2}^{(u,T_g)}]}{3} + \frac{\sqrt{3}\mathbb{X}_4[\mathbb{M}_{1,2}^{(u,T_g)}(1,-1)]\otimes\mathbb{U}_{23}[\mathbb{T}_{2,2}^{(u,T_g)}]}{3} + \frac{\sqrt{3}\mathbb{X}_4[\mathbb{M}_{1,2}^{(u,T_g)}(1,-1)]\otimes\mathbb{U}_{23}[\mathbb{M}_{1,2}^{(u,T_g)}]}{3} + \frac{\sqrt{3}\mathbb{X}_4[\mathbb{M}_{1,2}^{(u,T_g)}(1,-1)]\otimes\mathbb{U}_{23}[\mathbb{M$$

No. 13
$$\hat{\mathbb{Q}}_{4}^{(A_g)}(1,-1)$$
 [M₁, B₁]

$$\hat{\mathbb{Z}}_{13} = -\frac{\sqrt{3}\mathbb{X}_{2}[\mathbb{M}_{1,0}^{(a,T_{g})}(1,-1)] \otimes \mathbb{U}_{24}[\mathbb{T}_{4,0}^{(u,T_{g},1)}]}{3} - \frac{\sqrt{3}\mathbb{X}_{3}[\mathbb{M}_{1,1}^{(a,T_{g})}(1,-1)] \otimes \mathbb{U}_{25}[\mathbb{T}_{4,1}^{(u,T_{g},1)}]}{3} - \frac{\sqrt{3}\mathbb{X}_{4}[\mathbb{M}_{1,2}^{(a,T_{g})}(1,-1)] \otimes \mathbb{U}_{26}[\mathbb{T}_{4,2}^{(u,T_{g},1)}]}{3} - \frac{\sqrt{3}\mathbb{X}_{4}[\mathbb{M}_{1,2}^{(a,T_{g})}(1,-1)] \otimes \mathbb{U}_{26}[\mathbb{T}_{4,2}^{(u,T_{g},1)}]}{3} - \frac{\sqrt{3}\mathbb{X}_{4}[\mathbb{M}_{1,2}^{(a,T_{g})}(1,-1)] \otimes \mathbb{U}_{26}[\mathbb{T}_{4,2}^{(u,T_{g},1)}]}{3} - \frac{\sqrt{3}\mathbb{X}_{4}[\mathbb{M}_{1,2}^{(u,T_{g},1)}(1,-1)] \otimes \mathbb{U}_{26}[\mathbb{T}_{4,2}^{(u,T_{g},1)}]}{3} - \frac{\mathbb{X}_{4}[\mathbb{M}_{1,2}^{(u,T_{g},1)}(1,-1)] \otimes \mathbb{U}_{26}[\mathbb{T}_{4,2}^{(u,T_{g},1)}]}{3} - \frac{\mathbb{X}_{4}[\mathbb{M}_{1,2}^{(u,T_{g},1)}(1,-1)] \otimes \mathbb{U}_{26}[\mathbb{T}_{4,2}^{(u,T_{g},1)}]}{3} - \frac{\mathbb{X}_{4}[\mathbb{M}_{1,2}^{(u,T_{g},1)}(1,-1)] \otimes \mathbb{U}_{26}[\mathbb{T}_{4,2}^{(u,T_{g},1)}]}{3} - \frac{\mathbb{X}_{4}[\mathbb{M}_{1,2}^{(u,T_{g},1)}(1,-1)] \otimes \mathbb{U}_{26}[\mathbb{M}_{1,2}^{(u,T_{g},1)}(1,-1)]}{3} - \frac{\mathbb{X}_{4}[\mathbb{M}_{1,2}^{(u,T_{g},1)}(1,-1)] \otimes \mathbb{U}_{26}[\mathbb{M}_{1,2}^{(u,T_{g},1)}(1,-1)]}{3} - \frac{\mathbb{X}_{4}[\mathbb{M}_{1,2}^{(u,T_{g},1)}(1,-1)] \otimes \mathbb{U}_{26}[\mathbb{M}_{1,2}^{(u,T_{g},1)}(1,-1)]}{3} - \frac{\mathbb{X}_{4}[\mathbb{M}_{1,2}^{(u,T_{g},1)}(1,-1)] \otimes \mathbb{X}_{4}[\mathbb{M}_{1,2}^{(u,T_{g},1)}(1,-1)]}{3} - \frac{\mathbb{X}_{4}[\mathbb{M}_{1,2}^{(u,T_{g},1)}(1,-1)] \otimes \mathbb{X}_{4}[\mathbb{M}_{1,2}^{(u,T_{g},1)}(1,-1)]}{3} - \frac{\mathbb{X}_{4}[\mathbb{M}_{1,2}^{(u,T_{g},1)}(1,-1)] \otimes \mathbb{X}_{4}[\mathbb{M}_{1,2}^{(u,T_{g},1)}(1,-1)]}{3} - \frac{\mathbb{X}_{4}[\mathbb{M}_{1,2}^{(u,T_{g},1)}(1,-$$

No. 14
$$\hat{\mathbb{Q}}_0^{(A_g)}$$
 [M₂, B₁]

$$\hat{\mathbb{Z}}_{14} = \frac{\sqrt{3}\mathbb{X}_{5}[\mathbb{Q}_{1,0}^{(a,T_{u})}] \otimes \mathbb{U}_{10}[\mathbb{Q}_{1,0}^{(u,T_{u})}]}{3} + \frac{\sqrt{3}\mathbb{X}_{6}[\mathbb{Q}_{1,1}^{(a,T_{u})}] \otimes \mathbb{U}_{11}[\mathbb{Q}_{1,1}^{(u,T_{u})}]}{3} + \frac{\sqrt{3}\mathbb{X}_{7}[\mathbb{Q}_{1,2}^{(a,T_{u})}] \otimes \mathbb{U}_{12}[\mathbb{Q}_{1,2}^{(u,T_{u})}]}{3} + \frac{\sqrt{3}\mathbb{Q}_{12}[\mathbb{Q}_{1,2}^{(u,T_{u})}] \otimes \mathbb{Q}_{12}[\mathbb{Q}_{1,2}^{(u,T_{u})}]}{3} + \frac{\sqrt{3}\mathbb{Q}_{12}[\mathbb{Q}_{1,2}^{(u,T_{u})}] \otimes \mathbb{Q}_{12}[\mathbb{Q}_{1,2}^{$$

No. 15
$$\hat{\mathbb{Q}}_4^{(A_g)}$$
 [M₂, B₁]

$$\hat{\mathbb{Z}}_{15} = \frac{\sqrt{3}\mathbb{X}_{5}[\mathbb{Q}_{1,0}^{(a,T_{u})}] \otimes \mathbb{U}_{18}[\mathbb{Q}_{3,0}^{(u,T_{u},1)}]}{3} + \frac{\sqrt{3}\mathbb{X}_{6}[\mathbb{Q}_{1,1}^{(a,T_{u})}] \otimes \mathbb{U}_{19}[\mathbb{Q}_{3,1}^{(u,T_{u},1)}]}{3} + \frac{\sqrt{3}\mathbb{X}_{7}[\mathbb{Q}_{1,2}^{(a,T_{u})}] \otimes \mathbb{U}_{20}[\mathbb{Q}_{3,2}^{(u,T_{u},1)}]}{3}$$

No. 16
$$\hat{\mathbb{Q}}_0^{(A_g)}(1,0)$$
 [M₂, B₁]

$$\hat{\mathbb{Z}}_{16} = \frac{\sqrt{3}\mathbb{X}_{10}[\mathbb{Q}_{1,2}^{(a,T_u)}(1,0)] \otimes \mathbb{U}_{12}[\mathbb{Q}_{1,2}^{(u,T_u)}]}{3} + \frac{\sqrt{3}\mathbb{X}_{8}[\mathbb{Q}_{1,0}^{(a,T_u)}(1,0)] \otimes \mathbb{U}_{10}[\mathbb{Q}_{1,0}^{(u,T_u)}]}{3} + \frac{\sqrt{3}\mathbb{X}_{9}[\mathbb{Q}_{1,1}^{(a,T_u)}(1,0)] \otimes \mathbb{U}_{11}[\mathbb{Q}_{1,1}^{(u,T_u)}]}{3} + \frac{\sqrt{3}\mathbb{X}_{9}[\mathbb{Q}_{1,1}^{(a,T_u)}(1,0)] \otimes \mathbb{U}_{11}[\mathbb{Q}_{1,1}^{(u,T_u)}]}{3} + \frac{\sqrt{3}\mathbb{X}_{9}[\mathbb{Q}_{1,1}^{(a,T_u)}(1,0)] \otimes \mathbb{U}_{11}[\mathbb{Q}_{1,1}^{(u,T_u)}]}{3} + \frac{\sqrt{3}\mathbb{X}_{9}[\mathbb{Q}_{1,1}^{(u,T_u)}(1,0)] \otimes \mathbb{Q}_{11}[\mathbb{Q}_{1,1}^{(u,T_u)}]}{3} + \frac{\sqrt{3}\mathbb{X}_{9}[\mathbb{Q}_{1,1}^{(u,T_u)}(1,0)] \otimes \mathbb{Q}_{11}[\mathbb{Q}_{1,1}^{(u,T_u)}(1,0)]}{3} + \frac{\sqrt{3}\mathbb{Q}_{1,1}^{(u,T_u)}(1,0)}{3} + \frac{\sqrt{3}\mathbb{Q}_{1,1}^$$

No. 17
$$\hat{\mathbb{Q}}_{4}^{(A_g)}(1,0)$$
 [M₂, B₁]

$$\hat{\mathbb{Z}}_{17} = \frac{\sqrt{3}\mathbb{X}_{10}[\mathbb{Q}_{1,2}^{(a,T_u)}(1,0)] \otimes \mathbb{U}_{20}[\mathbb{Q}_{3,2}^{(u,T_u,1)}]}{3} + \frac{\sqrt{3}\mathbb{X}_{8}[\mathbb{Q}_{1,0}^{(a,T_u)}(1,0)] \otimes \mathbb{U}_{18}[\mathbb{Q}_{3,0}^{(u,T_u,1)}]}{3} + \frac{\sqrt{3}\mathbb{X}_{9}[\mathbb{Q}_{1,1}^{(a,T_u)}(1,0)] \otimes \mathbb{U}_{19}[\mathbb{Q}_{3,1}^{(u,T_u,1)}]}{3} + \frac{\sqrt{3}\mathbb{X}_{9}[\mathbb{Q}_{1,1}^{(a,T_u)}(1,0)] \otimes \mathbb{U}_{19}[\mathbb{Q}_{3,1}^{(u,T_u,1)}]}{3} + \frac{\sqrt{3}\mathbb{X}_{9}[\mathbb{Q}_{1,1}^{(u,T_u,1)}(1,0)] \otimes \mathbb{U}_{19}[\mathbb{Q}_{1,1}^{(u,T_u,1)}]}{3} + \frac{\sqrt{3}\mathbb{X}_{9}[\mathbb{Q}_{1,1}^{(u,T_u,1)}(1,0)] \otimes \mathbb{U}_{19}[\mathbb{Q}_{1,1}^{(u,T_u,1)}(1,0)]}{3} + \frac{\sqrt{3}\mathbb{X}_{9}[\mathbb{Q}_{1,1}^{(u,T_u,1)}(1,0)] \otimes \mathbb{U}_{9$$

No. 18
$$\hat{\mathbb{G}}_3^{(A_g)}(1,-1)$$
 [M₂, B₁]

$$\hat{\mathbb{Z}}_{18} = \frac{\sqrt{3}\mathbb{X}_{11}[\mathbb{G}_{2,0}^{(a,T_u)}(1,-1)] \otimes \mathbb{U}_{10}[\mathbb{Q}_{1,0}^{(u,T_u)}]}{3} + \frac{\sqrt{3}\mathbb{X}_{12}[\mathbb{G}_{2,1}^{(a,T_u)}(1,-1)] \otimes \mathbb{U}_{11}[\mathbb{Q}_{1,1}^{(u,T_u)}]}{3} + \frac{\sqrt{3}\mathbb{X}_{13}[\mathbb{G}_{2,2}^{(a,T_u)}(1,-1)] \otimes \mathbb{U}_{12}[\mathbb{Q}_{1,2}^{(u,T_u)}]}{3} + \frac{\sqrt{3}\mathbb{X}_{13}[\mathbb{Q}_{2,2}^{(a,T_u)}(1,-1)] \otimes \mathbb{U}_{12}[\mathbb{Q}_{1,2}^{(u,T_u)}]}{3} + \frac{\sqrt{3}\mathbb{X}_{13}[\mathbb{Q}_{2,2}^{(a,T_u)}(1,-1)] \otimes \mathbb{U}_{12}[\mathbb{Q}_{1,2}^{(u,T_u)}]}{3} + \frac{\sqrt{3}\mathbb{X}_{13}[\mathbb{Q}_{2,2}^{(u,T_u)}(1,-1)] \otimes \mathbb{U}_{12}[\mathbb{Q}_{2,2}^{(u,T_u)}]}{3} + \frac{\sqrt{3}\mathbb{X}_{13}[\mathbb{Q}_{2,2}^{(u,T_u)}(1,-1)] \otimes \mathbb{Q}_{2,2}}{3} + \frac{\sqrt{3}\mathbb{Z}_{2,2}[\mathbb{Q}_{2,2}^{(u,T_u)}(1,-1)]}{3} + \frac{\sqrt{3}\mathbb{Z}_{2,2}[\mathbb{Q}_{2,2}^{(u,T_u)}(1,-1)]}{3} + \frac{\sqrt{3}\mathbb{Z}_{2,2}$$

No. 19
$$\hat{\mathbb{G}}_3^{(A_g)}(1,-1)$$
 [M₂, B₁]

$$\hat{\mathbb{Z}}_{19} = -\frac{\sqrt{3}\mathbb{X}_{11}[\mathbb{G}_{2,0}^{(a,T_u)}(1,-1)] \otimes \mathbb{U}_{18}[\mathbb{Q}_{3,0}^{(u,T_u,1)}]}{3} - \frac{\sqrt{3}\mathbb{X}_{12}[\mathbb{G}_{2,1}^{(a,T_u)}(1,-1)] \otimes \mathbb{U}_{19}[\mathbb{Q}_{3,1}^{(u,T_u,1)}]}{3} - \frac{\sqrt{3}\mathbb{X}_{13}[\mathbb{G}_{2,2}^{(a,T_u)}(1,-1)] \otimes \mathbb{U}_{20}[\mathbb{Q}_{3,2}^{(u,T_u,1)}]}{3} - \frac{\sqrt{3}\mathbb{X}_{13}[\mathbb{Q}_{2,2}^{(a,T_u)}(1,-1)] \otimes \mathbb{U}_{20}[\mathbb{Q}_{3,2}^{(u,T_u,1)}]}{3} - \frac{\sqrt{3}\mathbb{X}_{13}[\mathbb{Q}_{2,2}^{(u,T_u,1)}(1,-1)] \otimes \mathbb{Q}_{20}[\mathbb{Q}_{3,2}^{(u,T_u,1)}]}{3} - \frac{\mathbb{Q}_{20}[\mathbb{Q}_{3,2}^{(u,T_u,1)}(1,-1)] \otimes \mathbb{Q}_{20}[\mathbb{Q}_{3,2}^{(u,T_u,1)}(1,-1)]}{3} - \frac{\mathbb{Q}_{20}[\mathbb{Q}$$

No. 20
$$\hat{\mathbb{Q}}_0^{(A_g)}$$
 [M₄, B₁]

$$\hat{\mathbb{Z}}_{20} = \frac{\sqrt{3}\mathbb{X}_{48}[\mathbb{Q}_{1,0}^{(a,T_u)}] \otimes \mathbb{U}_{10}[\mathbb{Q}_{1,0}^{(u,T_u)}]}{3} + \frac{\sqrt{3}\mathbb{X}_{49}[\mathbb{Q}_{1,1}^{(a,T_u)}] \otimes \mathbb{U}_{11}[\mathbb{Q}_{1,1}^{(u,T_u)}]}{3} + \frac{\sqrt{3}\mathbb{X}_{50}[\mathbb{Q}_{1,2}^{(a,T_u)}] \otimes \mathbb{U}_{12}[\mathbb{Q}_{1,2}^{(u,T_u)}]}{3} + \frac{\sqrt{3}\mathbb{X}_{50}[\mathbb{Q}_{1,2}^{(a,T_u)}] \otimes \mathbb{U}_{12}[\mathbb{Q}_{1,2}^{(u,T_u)}]}{3} + \frac{\sqrt{3}\mathbb{X}_{50}[\mathbb{Q}_{1,2}^{(a,T_u)}] \otimes \mathbb{U}_{12}[\mathbb{Q}_{1,2}^{(u,T_u)}]}{3} + \frac{\sqrt{3}\mathbb{X}_{50}[\mathbb{Q}_{1,2}^{(u,T_u)}] \otimes \mathbb{U}_{12}[\mathbb{Q}_{1,2}^{(u,T_u)}]}{3} + \frac{\sqrt{3}\mathbb{X}_{50}[\mathbb{Q}_{1,2}^{(u,T_u)}]}{3} + \frac{\sqrt{3}\mathbb{X}_{5$$

No. 21
$$\hat{\mathbb{Q}}_{4}^{(A_g)}$$
 [M₄, B₁]

$$\hat{\mathbb{Z}}_{21} = \frac{\sqrt{3}\mathbb{X}_{48}[\mathbb{Q}_{1,0}^{(a,T_u)}] \otimes \mathbb{U}_{18}[\mathbb{Q}_{3,0}^{(u,T_u,1)}]}{3} + \frac{\sqrt{3}\mathbb{X}_{49}[\mathbb{Q}_{1,1}^{(a,T_u)}] \otimes \mathbb{U}_{19}[\mathbb{Q}_{3,1}^{(u,T_u,1)}]}{3} + \frac{\sqrt{3}\mathbb{X}_{50}[\mathbb{Q}_{1,2}^{(a,T_u)}] \otimes \mathbb{U}_{20}[\mathbb{Q}_{3,2}^{(u,T_u,1)}]}{3} + \frac{\sqrt{3}\mathbb{X}_{50}[\mathbb{Q}_{1,2}^{(a,T_u)}] \otimes \mathbb{U}_{20}[\mathbb{Q}_{3,2}^{(u,T_u,1)}]}{3} + \frac{\sqrt{3}\mathbb{X}_{50}[\mathbb{Q}_{1,2}^{(a,T_u)}] \otimes \mathbb{U}_{20}[\mathbb{Q}_{3,2}^{(u,T_u,1)}]}{3} + \frac{\sqrt{3}\mathbb{X}_{50}[\mathbb{Q}_{1,2}^{(u,T_u,1)}] \otimes \mathbb{U}_{20}[\mathbb{Q}_{3,2}^{(u,T_u,1)}]}{3} + \frac{\sqrt{3}\mathbb{X}_{50}[\mathbb{Q}_{1,2}^{(u,T_u,1)}]}{3} + \frac{\sqrt{3}\mathbb{X}_{50}[\mathbb{Q}_{1$$

No. 22
$$\hat{\mathbb{Q}}_0^{(A_g)}(1,0)$$
 [M₄, B₁]

$$\hat{\mathbb{Z}}_{22} = \frac{\sqrt{3}\mathbb{X}_{51}[\mathbb{Q}_{1,0}^{(a,T_u)}(1,0)] \otimes \mathbb{U}_{10}[\mathbb{Q}_{1,0}^{(u,T_u)}]}{3} + \frac{\sqrt{3}\mathbb{X}_{52}[\mathbb{Q}_{1,1}^{(a,T_u)}(1,0)] \otimes \mathbb{U}_{11}[\mathbb{Q}_{1,1}^{(u,T_u)}]}{3} + \frac{\sqrt{3}\mathbb{X}_{53}[\mathbb{Q}_{1,2}^{(a,T_u)}(1,0)] \otimes \mathbb{U}_{12}[\mathbb{Q}_{1,2}^{(u,T_u)}]}{3} + \frac{\sqrt{3}\mathbb{X}_{53}[\mathbb{Q}_{1,2}^{(a,T_u)}(1,0)] \otimes \mathbb{U}_{12}[\mathbb{Q}_{1,2}^{(u,T_u)}]}{3} + \frac{\sqrt{3}\mathbb{X}_{53}[\mathbb{Q}_{1,2}^{(a,T_u)}(1,0)] \otimes \mathbb{U}_{12}[\mathbb{Q}_{1,2}^{(u,T_u)}]}{3} + \frac{\sqrt{3}\mathbb{X}_{53}[\mathbb{Q}_{1,2}^{(u,T_u)}(1,0)] \otimes \mathbb{Q}_{12}[\mathbb{Q}_{1,2}^{(u,T_u)}(1,0)]}{3} + \frac{\sqrt{3}\mathbb{X}_{53}[\mathbb{Q}_{1,2}^{(u,T$$

No. 23
$$\hat{\mathbb{Q}}_4^{(A_g)}(1,0)$$
 [M₄, B₁]

$$\hat{\mathbb{Z}}_{23} = \frac{\sqrt{3}\mathbb{X}_{51}[\mathbb{Q}_{1,0}^{(a,T_u)}(1,0)] \otimes \mathbb{U}_{18}[\mathbb{Q}_{3,0}^{(a,T_u,1)}]}{3} + \frac{\sqrt{3}\mathbb{X}_{52}[\mathbb{Q}_{1,1}^{(a,T_u)}(1,0)] \otimes \mathbb{U}_{19}[\mathbb{Q}_{3,1}^{(u,T_u,1)}]}{3} + \frac{\sqrt{3}\mathbb{X}_{53}[\mathbb{Q}_{1,2}^{(a,T_u)}(1,0)] \otimes \mathbb{U}_{20}[\mathbb{Q}_{3,2}^{(u,T_u,1)}]}{3} + \frac{\sqrt{3}\mathbb{X}_{53}[\mathbb{Q}_{1,2}^{(a,T_u)}(1,0)] \otimes \mathbb{U}_{20}[\mathbb{Q}_{3,2}^{(u,T_u,1)}]}{3} + \frac{\sqrt{3}\mathbb{X}_{53}[\mathbb{Q}_{1,2}^{(a,T_u)}(1,0)] \otimes \mathbb{U}_{20}[\mathbb{Q}_{3,2}^{(u,T_u,1)}]}{3} + \frac{\sqrt{3}\mathbb{X}_{53}[\mathbb{Q}_{1,2}^{(a,T_u)}(1,0)] \otimes \mathbb{U}_{20}[\mathbb{Q}_{3,2}^{(u,T_u,1)}]}{3} + \frac{\sqrt{3}\mathbb{X}_{53}[\mathbb{Q}_{1,2}^{(u,T_u)}(1,0)] \otimes \mathbb{U}_{20}[\mathbb{Q}_{3,2}^{(u,T_u,1)}]}{3} + \frac{\sqrt{3}\mathbb{X}_{53}[\mathbb{Q}_{1,2}^{(u,T_u,1)}(1,0)] \otimes \mathbb{Q}_{20}[\mathbb{Q}_{3,2}^{(u,T_u,1)}]}{3} + \frac{\sqrt{3}\mathbb{X}_{53}[\mathbb{Q}_{1,2}^{(u,T_u,1)}(1,0)] \otimes \mathbb{Q}_{20}[\mathbb{Q}_{3,2}^{(u,T_u,1)}(1,0)]}{3} + \frac{\sqrt{3}\mathbb{X}_{53}[\mathbb{Q}_{3,2}^{(u,T_u,1)}(1,0)] \otimes \mathbb{Q}_{20}[\mathbb{Q}_{3,2}^{(u,T_u,1)}(1,0)]}{3} + \frac{\sqrt{3}\mathbb{Z}_{20}[\mathbb{Q}_{3,2}^{(u,T_u,1)}(1,0$$

No. 24
$$\hat{\mathbb{G}}_3^{(A_g)}(1,-1)$$
 [M₄, B₁]

$$\hat{\mathbb{Z}}_{24} = \frac{\sqrt{3}\mathbb{X}_{54}[\mathbb{G}_{2,0}^{(a,T_u)}(1,-1)] \otimes \mathbb{U}_{10}[\mathbb{Q}_{1,0}^{(u,T_u)}]}{3} + \frac{\sqrt{3}\mathbb{X}_{55}[\mathbb{G}_{2,1}^{(a,T_u)}(1,-1)] \otimes \mathbb{U}_{11}[\mathbb{Q}_{1,1}^{(u,T_u)}]}{3} + \frac{\sqrt{3}\mathbb{X}_{56}[\mathbb{G}_{2,2}^{(a,T_u)}(1,-1)] \otimes \mathbb{U}_{12}[\mathbb{Q}_{1,2}^{(u,T_u)}]}{3} + \frac{\sqrt{3}\mathbb{X}_{56}[\mathbb{Q}_{2,2}^{(a,T_u)}(1,-1)] \otimes \mathbb{U}_{12}[\mathbb{Q}_{1,2}^{(u,T_u)}]}{3} + \frac{\sqrt{3}\mathbb{X}_{56}[\mathbb{Q}_{2,2}^{(a,T_u)}(1,-1)] \otimes \mathbb{U}_{12}[\mathbb{Q}_{1,2}^{(u,T_u)}]}{3} + \frac{\sqrt{3}\mathbb{X}_{56}[\mathbb{Q}_{2,2}^{(a,T_u)}(1,-1)] \otimes \mathbb{U}_{12}[\mathbb{Q}_{1,2}^{(u,T_u)}]}{3} + \frac{\sqrt{3}\mathbb{X}_{56}[\mathbb{Q}_{2,2}^{(u,T_u)}(1,-1)] \otimes \mathbb{U}_{12}[\mathbb{Q}_{1,2}^{(u,T_u)}]}{3} + \frac{\sqrt{3}\mathbb{X}_{5$$

No. 25
$$\hat{\mathbb{G}}_3^{(A_g)}(1,-1)$$
 [M₄, B₁]

$$\hat{\mathbb{Z}}_{25} = -\frac{\sqrt{3}\mathbb{X}_{54}[\mathbb{G}_{2,0}^{(a,T_u)}(1,-1)]\otimes\mathbb{U}_{18}[\mathbb{Q}_{3,0}^{(u,T_u,1)}]}{3} - \frac{\sqrt{3}\mathbb{X}_{55}[\mathbb{G}_{2,1}^{(a,T_u)}(1,-1)]\otimes\mathbb{U}_{19}[\mathbb{Q}_{3,1}^{(u,T_u,1)}]}{3} - \frac{\sqrt{3}\mathbb{X}_{56}[\mathbb{G}_{2,2}^{(a,T_u)}(1,-1)]\otimes\mathbb{U}_{20}[\mathbb{Q}_{3,2}^{(u,T_u,1)}]}{3} - \frac{\sqrt{3}\mathbb{X}_{56}[\mathbb{Q}_{2,2}^{(a,T_u)}(1,-1)]\otimes\mathbb{U}_{20}[\mathbb{Q}_{3,2}^{(u,T_u,1)}]}{3} - \frac{\sqrt{3}\mathbb{X}_{56}[\mathbb{Q}_{2,2}^{(u,T_u,1)}(1,-1)]\otimes\mathbb{U}_{20}[\mathbb{Q}_{3,2}^{(u,T_u,1)}]}{3} - \frac{\mathbb{Q}_{20}[\mathbb{Q}_{3,2}^{(u,T_u,1)}(1,-1)]\otimes\mathbb{Q}_{20}[\mathbb{Q}_{3,2}^{(u,T_u,1)}]}{3} - \frac{\mathbb{Q}_{20}[\mathbb{Q}_{3,$$

No. 26
$$\hat{\mathbb{Q}}_0^{(A_g)}$$
 [M₃, B₁]

$$\hat{\mathbb{Z}}_{26} = \mathbb{X}_{15}[\mathbb{Q}_0^{(a,A_g)}] \otimes \mathbb{U}_9[\mathbb{Q}_0^{(u,A_g)}]$$

No. 27
$$\hat{\mathbb{Q}}_0^{(A_g)}(1,1)$$
 [M₃, B₁]

$$\hat{\mathbb{Z}}_{27} = \mathbb{X}_{16}[\mathbb{Q}_0^{(a,A_g)}(1,1)] \otimes \mathbb{U}_9[\mathbb{Q}_0^{(u,A_g)}]$$

No. 28
$$\hat{\mathbb{Q}}_0^{(A_g)}$$
 [M₃, B₁]

$$\begin{split} \hat{\mathbb{Z}}_{28} &= \frac{\sqrt{5}\mathbb{X}_{17}[\mathbb{Q}_{2,0}^{(a,E_g)}] \otimes \mathbb{U}_{13}[\mathbb{Q}_{2,0}^{(u,E_g)}]}{5} + \frac{\sqrt{5}\mathbb{X}_{18}[\mathbb{Q}_{2,1}^{(a,E_g)}] \otimes \mathbb{U}_{14}[\mathbb{Q}_{2,1}^{(u,E_g)}]}{5} + \frac{\sqrt{5}\mathbb{X}_{19}[\mathbb{Q}_{2,0}^{(a,T_g)}] \otimes \mathbb{U}_{15}[\mathbb{Q}_{2,0}^{(u,T_g)}]}{5} \\ &+ \frac{\sqrt{5}\mathbb{X}_{20}[\mathbb{Q}_{2,1}^{(a,T_g)}] \otimes \mathbb{U}_{16}[\mathbb{Q}_{2,1}^{(u,T_g)}]}{5} + \frac{\sqrt{5}\mathbb{X}_{21}[\mathbb{Q}_{2,2}^{(a,T_g)}] \otimes \mathbb{U}_{17}[\mathbb{Q}_{2,2}^{(u,T_g)}]}{5} \end{split}$$

No. 29
$$\hat{\mathbb{G}}_{3}^{(A_g)}$$
 [M₃, B₁]

$$\hat{\mathbb{Z}}_{29} = \frac{\sqrt{2}\mathbb{X}_{17}[\mathbb{Q}_{2,0}^{(a,E_g)}] \otimes \mathbb{U}_{14}[\mathbb{Q}_{2,1}^{(u,E_g)}]}{2} - \frac{\sqrt{2}\mathbb{X}_{18}[\mathbb{Q}_{2,1}^{(a,E_g)}] \otimes \mathbb{U}_{13}[\mathbb{Q}_{2,0}^{(u,E_g)}]}{2}$$

No. 30
$$\hat{\mathbb{Q}}_{4}^{(A_g)}$$
 [M₃, B₁]

$$\hat{\mathbb{Z}}_{30} = \frac{\sqrt{30}\mathbb{X}_{17}[\mathbb{Q}_{2,0}^{(a,E_g)}] \otimes \mathbb{U}_{13}[\mathbb{Q}_{2,0}^{(u,E_g)}]}{10} + \frac{\sqrt{30}\mathbb{X}_{18}[\mathbb{Q}_{2,1}^{(a,E_g)}] \otimes \mathbb{U}_{14}[\mathbb{Q}_{2,1}^{(u,E_g)}]}{10} - \frac{\sqrt{30}\mathbb{X}_{19}[\mathbb{Q}_{2,0}^{(a,T_g)}] \otimes \mathbb{U}_{15}[\mathbb{Q}_{2,0}^{(u,T_g)}]}{15} - \frac{\sqrt{30}\mathbb{X}_{21}[\mathbb{Q}_{2,2}^{(a,T_g)}] \otimes \mathbb{U}_{17}[\mathbb{Q}_{2,2}^{(u,T_g)}]}{15}$$

No. 31
$$\hat{\mathbb{Q}}_0^{(A_g)}(1,-1)$$
 [M₃, B₁]

$$\begin{split} \hat{\mathbb{Z}}_{31} &= \frac{\sqrt{5}\mathbb{X}_{22}[\mathbb{Q}_{2,0}^{(a,E_g)}(1,-1)] \otimes \mathbb{U}_{13}[\mathbb{Q}_{2,0}^{(u,E_g)}]}{5} + \frac{\sqrt{5}\mathbb{X}_{23}[\mathbb{Q}_{2,1}^{(a,E_g)}(1,-1)] \otimes \mathbb{U}_{14}[\mathbb{Q}_{2,1}^{(u,E_g)}]}{5} + \frac{\sqrt{5}\mathbb{X}_{24}[\mathbb{Q}_{2,0}^{(a,T_g)}(1,-1)] \otimes \mathbb{U}_{15}[\mathbb{Q}_{2,0}^{(u,T_g)}]}{5} \\ &+ \frac{\sqrt{5}\mathbb{X}_{25}[\mathbb{Q}_{2,1}^{(a,T_g)}(1,-1)] \otimes \mathbb{U}_{16}[\mathbb{Q}_{2,1}^{(u,T_g)}]}{5} + \frac{\sqrt{5}\mathbb{X}_{26}[\mathbb{Q}_{2,2}^{(a,T_g)}(1,-1)] \otimes \mathbb{U}_{17}[\mathbb{Q}_{2,2}^{(u,T_g)}]}{5} \end{split}$$

No. 32
$$\hat{\mathbb{G}}_3^{(A_g)}(1,-1)$$
 [M₃, B₁]

$$\hat{\mathbb{Z}}_{32} = \frac{\sqrt{2}\mathbb{X}_{22}[\mathbb{Q}_{2,0}^{(a,E_g)}(1,-1)] \otimes \mathbb{U}_{14}[\mathbb{Q}_{2,1}^{(u,E_g)}]}{2} - \frac{\sqrt{2}\mathbb{X}_{23}[\mathbb{Q}_{2,1}^{(a,E_g)}(1,-1)] \otimes \mathbb{U}_{13}[\mathbb{Q}_{2,0}^{(u,E_g)}]}{2}$$

No. 33
$$\hat{\mathbb{Q}}_4^{(A_g)}(1,-1)$$
 [M₃, B₁]

$$\hat{\mathbb{Z}}_{33} = \frac{\sqrt{30}\mathbb{X}_{22}[\mathbb{Q}_{2,0}^{(a,E_g)}(1,-1)] \otimes \mathbb{U}_{13}[\mathbb{Q}_{2,0}^{(u,E_g)}]}{10} + \frac{\sqrt{30}\mathbb{X}_{23}[\mathbb{Q}_{2,1}^{(a,E_g)}(1,-1)] \otimes \mathbb{U}_{14}[\mathbb{Q}_{2,1}^{(u,E_g)}]}{10} - \frac{\sqrt{30}\mathbb{X}_{24}[\mathbb{Q}_{2,0}^{(a,T_g)}(1,-1)] \otimes \mathbb{U}_{15}[\mathbb{Q}_{2,0}^{(u,T_g)}]}{15} - \frac{\sqrt{30}\mathbb{X}_{26}[\mathbb{Q}_{2,2}^{(a,T_g)}(1,-1)] \otimes \mathbb{U}_{17}[\mathbb{Q}_{2,2}^{(u,T_g)}]}{15} - \frac{\sqrt{30}\mathbb{X}_{24}[\mathbb{Q}_{2,0}^{(a,T_g)}(1,-1)] \otimes \mathbb{U}_{15}[\mathbb{Q}_{2,0}^{(u,T_g)}]}{15} - \frac{\sqrt{30}\mathbb{X}_{26}[\mathbb{Q}_{2,2}^{(a,T_g)}(1,-1)] \otimes \mathbb{U}_{17}[\mathbb{Q}_{2,2}^{(u,T_g)}]}{15} - \frac{\sqrt{30}\mathbb{X}_{24}[\mathbb{Q}_{2,0}^{(a,T_g)}(1,-1)] \otimes \mathbb{U}_{15}[\mathbb{Q}_{2,0}^{(u,T_g)}]}{15} - \frac{\sqrt{30}\mathbb{X}_{26}[\mathbb{Q}_{2,2}^{(u,T_g)}(1,-1)] \otimes \mathbb{U}_{17}[\mathbb{Q}_{2,2}^{(u,T_g)}]}{15} - \frac{\sqrt{30}\mathbb{X}_{24}[\mathbb{Q}_{2,0}^{(a,T_g)}(1,-1)] \otimes \mathbb{U}_{15}[\mathbb{Q}_{2,0}^{(u,T_g)}]}{15} - \frac{\sqrt{30}\mathbb{X}_{26}[\mathbb{Q}_{2,0}^{(u,T_g)}(1,-1)] \otimes \mathbb{U}_{17}[\mathbb{Q}_{2,0}^{(u,T_g)}]}{15} - \frac{\sqrt{30}\mathbb{X}_{26}[\mathbb{Q}_{2,0}^{(u,T_g)}]}{15} - \frac{\sqrt{30}\mathbb{X}_{26}[\mathbb{Q}_{2,0}^{(u,T_g)}(1,-1)] \otimes \mathbb{Q}_{26}[\mathbb{Q}_{2,0}^{(u,T_g)}]}{15} - \frac{\sqrt{30}\mathbb{X}_{26}[\mathbb{Q}_{2,0}^{(u,T_g)}(1,-1)]}{15} - \frac{\sqrt{30}\mathbb{X}_{26}[\mathbb{Q}_{2,0}^{(u,T_g)}]$$

No. 34
$$\hat{\mathbb{G}}_3^{(A_g)}(1,0)$$
 [M₃, B₁]

$$\hat{\mathbb{Z}}_{34} = \frac{\sqrt{3}\mathbb{X}_{27}[\mathbb{G}_{1,0}^{(a,T_g)}(1,0)] \otimes \mathbb{U}_{15}[\mathbb{Q}_{2,0}^{(u,T_g)}]}{3} + \frac{\sqrt{3}\mathbb{X}_{28}[\mathbb{G}_{1,1}^{(a,T_g)}(1,0)] \otimes \mathbb{U}_{16}[\mathbb{Q}_{2,1}^{(u,T_g)}]}{3} + \frac{\sqrt{3}\mathbb{X}_{29}[\mathbb{G}_{1,2}^{(a,T_g)}(1,0)] \otimes \mathbb{U}_{17}[\mathbb{Q}_{2,2}^{(u,T_g)}]}{3} + \frac{\sqrt{3}\mathbb{X}_{29}[\mathbb{Q}_{1,2}^{(a,T_g)}(1,0)] \otimes \mathbb{U}_{17}[\mathbb{Q}_{2,2}^{(u,T_g)}]}{3} + \frac{\sqrt{3}\mathbb{X}_{29}[\mathbb{Q}_{1,2}^{(u,T_g)}(1,0)] \otimes \mathbb{U}_{17}[\mathbb{Q}_{2,2}^{(u,T_g)}(1,0)]}{3} + \frac{\sqrt{3}\mathbb{X}_{29}[\mathbb{Q}_{1,2}^{(u,T_g)}(1,0)] \otimes \mathbb{U}_{17}[\mathbb{Q}_{1,2}^{(u,T_g)}(1,0)]}{3} + \frac{\sqrt{3}\mathbb{X}_{29}[\mathbb{Q}_{1,2}^{(u,T_g)}(1,0)] \otimes \mathbb{Q}_{17}[\mathbb{Q}_{1,2}^{(u,T_g)}(1,0)]}{3} + \frac{\sqrt{3}\mathbb{X}_{29}[\mathbb{Q}_{1,2}^{(u,T_g)}(1,0)] \otimes \mathbb{Q}_{17}[\mathbb{Q}_{1,2}^{(u,T_g)}(1,0)]}{3} + \frac{\sqrt{3}\mathbb{X}_{29}[\mathbb{Q}_{1,2$$

No. 35
$$\hat{\mathbb{G}}_{3}^{(A_g)}$$
 [M₃, B₁]

$$\hat{\mathbb{Z}}_{35} = \frac{\sqrt{3}\mathbb{X}_{30}[\mathbb{M}_{1,0}^{(a,T_g)}] \otimes \mathbb{U}_{21}[\mathbb{T}_{2,0}^{(u,T_g)}]}{3} + \frac{\sqrt{3}\mathbb{X}_{31}[\mathbb{M}_{1,1}^{(a,T_g)}] \otimes \mathbb{U}_{22}[\mathbb{T}_{2,1}^{(u,T_g)}]}{3} + \frac{\sqrt{3}\mathbb{X}_{32}[\mathbb{M}_{1,2}^{(a,T_g)}] \otimes \mathbb{U}_{23}[\mathbb{T}_{2,2}^{(u,T_g)}]}{3} + \frac{\sqrt{3}\mathbb{X}_{32}[\mathbb{M}_{1,2}^{(a,T_g)}] \otimes \mathbb{U}_{23}[\mathbb{T}_{2,2}^{(u,T_g)}]}{3} + \frac{\sqrt{3}\mathbb{X}_{32}[\mathbb{M}_{1,2}^{(a,T_g)}] \otimes \mathbb{U}_{23}[\mathbb{T}_{2,2}^{(u,T_g)}]}{3} + \frac{\sqrt{3}\mathbb{X}_{32}[\mathbb{M}_{1,2}^{(a,T_g)}] \otimes \mathbb{U}_{23}[\mathbb{T}_{2,2}^{(u,T_g)}]}{3} + \frac{\sqrt{3}\mathbb{X}_{32}[\mathbb{M}_{1,2}^{(u,T_g)}] \otimes \mathbb{U}_{23}[\mathbb{T}_{2,2}^{(u,T_g)}]}{3} + \frac{\sqrt{3}\mathbb{X}_{32}[\mathbb{M}_{1,2}^{(u,T_g)}]}{3} + \frac{\sqrt$$

No. 36
$$\hat{\mathbb{Q}}_{4}^{(A_g)}$$
 [M₃, B₁]

$$\hat{\mathbb{Z}}_{36} = -\frac{\sqrt{3}\mathbb{X}_{30}[\mathbb{M}_{1,0}^{(a,T_g)}] \otimes \mathbb{U}_{24}[\mathbb{T}_{4,0}^{(u,T_g,1)}]}{3} - \frac{\sqrt{3}\mathbb{X}_{31}[\mathbb{M}_{1,1}^{(a,T_g)}] \otimes \mathbb{U}_{25}[\mathbb{T}_{4,1}^{(u,T_g,1)}]}{3} - \frac{\sqrt{3}\mathbb{X}_{32}[\mathbb{M}_{1,2}^{(a,T_g)}] \otimes \mathbb{U}_{26}[\mathbb{T}_{4,2}^{(u,T_g,1)}]}{3}$$

No. 37
$$\hat{\mathbb{G}}_{3}^{(A_g)}(1,1)$$
 [M₃, B₁]

$$\hat{\mathbb{Z}}_{37} = \frac{\sqrt{3}\mathbb{X}_{33}[\mathbb{M}_{1,0}^{(a,T_g)}(1,1)] \otimes \mathbb{U}_{21}[\mathbb{T}_{2,0}^{(u,T_g)}]}{3} + \frac{\sqrt{3}\mathbb{X}_{34}[\mathbb{M}_{1,1}^{(a,T_g)}(1,1)] \otimes \mathbb{U}_{22}[\mathbb{T}_{2,1}^{(u,T_g)}]}{3} + \frac{\sqrt{3}\mathbb{X}_{35}[\mathbb{M}_{1,2}^{(a,T_g)}(1,1)] \otimes \mathbb{U}_{23}[\mathbb{T}_{2,2}^{(u,T_g)}]}{3} + \frac{\sqrt{3}\mathbb{X}_{35}[\mathbb{M}_{1,2}^{(a,T_g)}(1,1)] \otimes \mathbb{U}_{23}[\mathbb{T}_{2,2}^{(u,T_g)}(1,1)]}{3} + \frac{\sqrt{3}\mathbb{X}_{35}[\mathbb{M}_{1,2}^{(u,T_g)}(1,1)] \otimes \mathbb{U}_{23}[\mathbb{M}_{1,2}^{(u,T_g)}(1,1)]}{3} + \frac{\sqrt{3}\mathbb{X}_{35}[\mathbb{M}$$

No. 38
$$\hat{\mathbb{Q}}_{4}^{(A_g)}(1,1)$$
 [M₃, B₁]

$$\hat{\mathbb{Z}}_{38} = -\frac{\sqrt{3}\mathbb{X}_{33}[\mathbb{M}_{1,0}^{(a,T_g)}(1,1)]\otimes\mathbb{U}_{24}[\mathbb{T}_{4,0}^{(u,T_g,1)}]}{3} - \frac{\sqrt{3}\mathbb{X}_{34}[\mathbb{M}_{1,1}^{(a,T_g)}(1,1)]\otimes\mathbb{U}_{25}[\mathbb{T}_{4,1}^{(u,T_g,1)}]}{3} - \frac{\sqrt{3}\mathbb{X}_{35}[\mathbb{M}_{1,2}^{(a,T_g)}(1,1)]\otimes\mathbb{U}_{26}[\mathbb{T}_{4,2}^{(u,T_g,1)}]}{3} - \frac{\sqrt{3}\mathbb{X}_{45}[\mathbb{M}_{1,2}^{(a,T_g)}(1,1)]\otimes\mathbb{U}_{26}[\mathbb{T}_{4,2}^{(u,T_g,1)}]}{3} - \frac{\sqrt{3}\mathbb{X}_{45}[\mathbb{M}_{1,2}^{(a,T_g)}(1,1)]\otimes\mathbb{U}_{26}[\mathbb{T}_{4,2}^{(u,T_g,1)}]}{3} - \frac{\sqrt{3}\mathbb{X}_{45}[\mathbb{M}_{1,2}^{(u,T_g,1)}]}{3} - \frac{2$$

No. 39
$$\hat{\mathbb{G}}_{3}^{(A_g)}(1,-1)$$
 [M₃, B₁]

$$\hat{\mathbb{Z}}_{39} = \frac{\sqrt{3}\mathbb{X}_{36}[\mathbb{M}_{1,0}^{(a,T_g)}(1,-1)] \otimes \mathbb{U}_{21}[\mathbb{T}_{2,0}^{(u,T_g)}]}{3} + \frac{\sqrt{3}\mathbb{X}_{37}[\mathbb{M}_{1,1}^{(a,T_g)}(1,-1)] \otimes \mathbb{U}_{22}[\mathbb{T}_{2,1}^{(u,T_g)}]}{3} + \frac{\sqrt{3}\mathbb{X}_{38}[\mathbb{M}_{1,2}^{(a,T_g)}(1,-1)] \otimes \mathbb{U}_{23}[\mathbb{T}_{2,2}^{(u,T_g)}]}{3} + \frac{\sqrt{3}\mathbb{X}_{38}[\mathbb{M}_{1,2}^{(u,T_g)}(1,-1)] \otimes \mathbb{U}_{23}[\mathbb{M}_{1,2}^{(u,T_g)}]}{3} + \frac{\sqrt{3}\mathbb{X}_{38}[\mathbb{M}_{1,2}^{(u,T_g)}(1,-1)] \otimes \mathbb{U}_{23}[\mathbb{M}_{1,2}^{(u,T_g)}]}{3} + \frac{\sqrt{3}\mathbb{X}_{3$$

No. 40
$$\hat{\mathbb{Q}}_4^{(A_g)}(1,-1)$$
 [M₃, B₁]

$$\hat{\mathbb{Z}}_{40} = -\frac{\sqrt{3}\mathbb{X}_{36}[\mathbb{M}_{1,0}^{(a,T_g)}(1,-1)] \otimes \mathbb{U}_{24}[\mathbb{T}_{4,0}^{(u,T_g,1)}]}{3} - \frac{\sqrt{3}\mathbb{X}_{37}[\mathbb{M}_{1,1}^{(a,T_g)}(1,-1)] \otimes \mathbb{U}_{25}[\mathbb{T}_{4,1}^{(u,T_g,1)}]}{3} - \frac{\sqrt{3}\mathbb{X}_{38}[\mathbb{M}_{1,2}^{(a,T_g)}(1,-1)] \otimes \mathbb{U}_{26}[\mathbb{T}_{4,2}^{(u,T_g,1)}]}{3} - \frac{\sqrt{3}\mathbb{X}_{38}[\mathbb{M}_{1,2}^{(a,T_g)}(1,-1)] \otimes \mathbb{U}_{26}[\mathbb{T}_{4,2}^{(u,T_g,1)}]}{3} - \frac{\sqrt{3}\mathbb{X}_{38}[\mathbb{M}_{1,2}^{(a,T_g)}(1,-1)] \otimes \mathbb{U}_{26}[\mathbb{T}_{4,2}^{(u,T_g,1)}]}{3} - \frac{\sqrt{3}\mathbb{X}_{38}[\mathbb{M}_{1,2}^{(a,T_g)}(1,-1)] \otimes \mathbb{U}_{26}[\mathbb{T}_{4,2}^{(u,T_g,1)}]}{3} - \frac{\sqrt{3}\mathbb{X}_{38}[\mathbb{M}_{1,2}^{(u,T_g,1)}(1,-1)] \otimes \mathbb{U}_{26}[\mathbb{T}_{4,2}^{(u,T_g,1)}]}{3} - \frac{\mathbb{X}_{38}[\mathbb{M}_{1,2}^{(u,T_g,1)}(1,-1)] \otimes \mathbb{U}_{26}[\mathbb{T}_{4,2}^{(u,T_g,1)}(1,-1)]}{3} - \frac{\mathbb{X}_{38}[\mathbb{M}_{1,2}^{(u,T_g,1)}(1,-1)] \otimes \mathbb{U}_{26}[\mathbb{T}_{4,2}^{(u,T_g,1)}(1,-1)]}{3} - \frac{\mathbb{X}_{38}[\mathbb{M}_{1,2}^{(u,T_g,1)}(1,-1)] \otimes \mathbb{U}_{26}[\mathbb{T}_{4,2}^{(u,T_g,1)}(1,-1)]}{3} - \frac{\mathbb{X}_{38}[\mathbb{M}_{1,2}^{(u,T_g,1)}(1,-1)] \otimes \mathbb{U}_{26}[\mathbb{M}_{1,2}^{(u,T_g,1)}(1,-1)]}{3} - \frac{\mathbb{X}_{38}[\mathbb{M}_{1,2}^{(u,T_g,1)}(1,-1)] \otimes \mathbb{U}_{26}[\mathbb{M}_{1,2}^{(u,T_g,1)}(1,-1)]}{3} - \frac{\mathbb{X}_{38}[\mathbb{M}_{1,2}^{(u,T_g,1)}(1,-1)] \otimes \mathbb{X}_{38}[\mathbb{M}_{1,2}^{(u,T_g,1)}(1,-1)]}{3} - \frac{\mathbb{X}_{38}[\mathbb{M}_{1,2}^{(u,T_g,1)}(1,-1)] \otimes \mathbb{X}_{38}[\mathbb{M}_{1,2}^{(u,T_g,1)}(1,-1)]}{3} - \frac{\mathbb{X}_{38}[\mathbb{M}_{1,2}^{(u,T_g,1)}(1,-1)] \otimes \mathbb{X}_{38}[\mathbb{M}_{1,2}^{(u,T_g,1)}(1,-1)]}{3} - \frac{\mathbb{X}_{38}[\mathbb{M}_{1,2}^{(u,T_g,1)}(1,-1)] \otimes \mathbb{X}_{38}[\mathbb{M}_{1,2}^{(u,T_g,1)}(1,-1)]}{3}$$

No. 41
$$\hat{\mathbb{G}}_{3}^{(A_g)}(1,-1)$$
 [M₃, B₁]

$$\hat{\mathbb{Z}}_{41} = -\frac{\sqrt{3}\mathbb{X}_{39}[\mathbb{M}_{3,0}^{(a,T_g,1)}(1,-1)] \otimes \mathbb{U}_{21}[\mathbb{T}_{2,0}^{(u,T_g)}]}{3} - \frac{\sqrt{3}\mathbb{X}_{40}[\mathbb{M}_{3,1}^{(a,T_g,1)}(1,-1)] \otimes \mathbb{U}_{22}[\mathbb{T}_{2,1}^{(u,T_g)}]}{3} - \frac{\sqrt{3}\mathbb{X}_{41}[\mathbb{M}_{3,2}^{(a,T_g,1)}(1,-1)] \otimes \mathbb{U}_{23}[\mathbb{T}_{2,2}^{(u,T_g)}]}{3} - \frac{\sqrt{3}\mathbb{X}_{41}[\mathbb{M}_{3,2}^{(a,T_g,1)}(1,-1)] \otimes \mathbb{U}_{23}[\mathbb{T}_{2,2}^{(u,T_g)}]}{3} - \frac{\mathbb{U}_{31}[\mathbb{M}_{3,2}^{(u,T_g)}(1,-1)] \otimes \mathbb{U}_{31}[\mathbb{M}_{3,2}^{(u,T_g)}(1,-1)] \otimes \mathbb{U}_{31}[\mathbb{M}_{3,2}^{(u,T_g)}(1,-1)]}{3} - \frac{\mathbb{U}_{31}[\mathbb{M}_{3,2}^{(u,T_g)}(1,-1)] \otimes \mathbb{U}_{31}[\mathbb{M}_{3,2}^{(u,T_g)}(1,-1)]}{3} - \frac{\mathbb{U}_{31}[\mathbb{M}_{3,2}^{(u,T_g)}(1,-1)]}{3} - \frac{\mathbb{U}_{31}[\mathbb{M}_{31}[\mathbb{M}$$

No. 42
$$\hat{\mathbb{Q}}_{4}^{(A_g)}(1,-1)$$
 [M₃, B₁]

$$\hat{\mathbb{Z}}_{42} = -\frac{\sqrt{3}\mathbb{X}_{42}[\mathbb{M}_{3,0}^{(a,T_g,2)}(1,-1)]\otimes\mathbb{U}_{21}[\mathbb{T}_{2,0}^{(u,T_g)}]}{3} - \frac{\sqrt{3}\mathbb{X}_{43}[\mathbb{M}_{3,1}^{(a,T_g,2)}(1,-1)]\otimes\mathbb{U}_{22}[\mathbb{T}_{2,1}^{(u,T_g)}]}{3} - \frac{\sqrt{3}\mathbb{X}_{44}[\mathbb{M}_{3,2}^{(a,T_g,2)}(1,-1)]\otimes\mathbb{U}_{23}[\mathbb{T}_{2,2}^{(u,T_g)}]}{3} - \frac{\sqrt{3}\mathbb{X}_{44}[\mathbb{M}_{3,2}^{(a,T_g,2)}(1,-1)]\otimes\mathbb{U}_{23}[\mathbb{T}_{2,2}^{(u,T_g)}]}{3} - \frac{\sqrt{3}\mathbb{X}_{44}[\mathbb{M}_{3,2}^{(a,T_g,2)}(1,-1)]\otimes\mathbb{U}_{23}[\mathbb{T}_{2,2}^{(u,T_g)}]}{3} - \frac{\sqrt{3}\mathbb{X}_{44}[\mathbb{M}_{3,2}^{(a,T_g,2)}(1,-1)]\otimes\mathbb{U}_{23}[\mathbb{T}_{2,2}^{(u,T_g)}]}{3} - \frac{\sqrt{3}\mathbb{X}_{44}[\mathbb{M}_{3,2}^{(u,T_g,2)}(1,-1)]\otimes\mathbb{U}_{23}[\mathbb{T}_{2,2}^{(u,T_g)}]}{3} - \frac{\sqrt{3}\mathbb{X}_{44}[\mathbb{M}_{3,2}^{(u,T_g,2)}(1,-1)]\otimes\mathbb{U}_{23}[\mathbb{T}_{2,2}^{(u,T_g)}]}{3} - \frac{\sqrt{3}\mathbb{X}_{44}[\mathbb{M}_{3,2}^{(u,T_g,2)}(1,-1)]\otimes\mathbb{U}_{23}[\mathbb{T}_{2,2}^{(u,T_g)}]}{3} - \frac{\sqrt{3}\mathbb{X}_{44}[\mathbb{M}_{3,2}^{(u,T_g,2)}(1,-1)]\otimes\mathbb{U}_{23}[\mathbb{T}_{2,2}^{(u,T_g)}]}{3} - \frac{\mathbb{X}_{44}[\mathbb{M}_{3,2}^{(u,T_g,2)}(1,-1)]\otimes\mathbb{U}_{23}[\mathbb{T}_{2,2}^{(u,T_g)}]}{3} - \frac{\mathbb{X}_{44}[\mathbb{M}_{3,2}^{(u,T_g,2)}(1,-1)]\otimes\mathbb{U}_{23}[\mathbb{T}_{2,2}^{(u,T_g)}]}}{3} - \frac{\mathbb{X}_{44}[\mathbb{M}_{3,2}^{(u,T_g,2)}(1,-1)]\otimes\mathbb{U}_{23}[\mathbb{T}_{2,2}^{(u,T_g,2)}]}}{3} - \frac{\mathbb{X}_{44}[\mathbb{M}_{3,2}^{(u,T_g,2)}(1,-1)]\otimes\mathbb{U}_{23}[\mathbb{T}_{2,2}^{(u,T_g,2)}]}}{3} - \frac{\mathbb{X}_{44}[\mathbb{M}_{3,2}^{(u,T_g,2)}(1,-1)]\otimes\mathbb{U}_{23}[\mathbb{T}_{2,2}^{(u,T_g,2)}]}}{3} - \frac{\mathbb{X}_{44}[\mathbb{M}_{3,2}^{(u,T_g,2)}(1,-1)]\otimes\mathbb{U}_{23}[\mathbb{T}_{2,2}^{(u,T_g,2)}]}}{3} - \frac{\mathbb{X}_{44}[\mathbb{M}_{3,2}^{(u,T_g,2)}(1,-1)]\otimes\mathbb{U}_{23}[\mathbb{T}_{2,2}^{(u,T_g,2)}]}}{3} - \frac{\mathbb{X}_{44}[\mathbb{M}_{3,2}^{(u,T_g,2)}(1,-1)]\otimes\mathbb{U}_{23}[\mathbb{T}_{2,2}^{(u,T_g,2)}]}}{3} - \frac{\mathbb{X}_{44}[\mathbb{M}_{3,2}^{(u,T_g,2)}(1,-1)]\otimes\mathbb{U}_{23}[\mathbb{M}_{3,2}^{(u,T_g,2)}(1,-1)]}}{3} - \frac{\mathbb{X}_{44}[\mathbb{M}_{3,2}^{(u,T_g,2)}(1,-1)]\otimes\mathbb{U}_{23}[\mathbb{M}_{3,2}^{(u,T_g,2)}(1,-1)]}}{3} - \frac{\mathbb{X}_{44}[\mathbb{M}_{3,2}^{(u,T_g,2)}(1,-1)]\otimes\mathbb{U}_{23}[\mathbb{M}_{3,2}^{(u,T_g,2)}(1,-1)]}}{3} - \mathbb{X}_{44}[\mathbb{M}_{3,2}^{(u,T_g,2)}(1,-1)]\otimes\mathbb{U}_{23}[\mathbb{M}_{3,2}^{(u,T_g,2)}(1,-1)]}$$

No. 43
$$\hat{\mathbb{G}}_3^{(A_g)}(1,-1)$$
 [M₃, B₁]

$$\hat{\mathbb{Z}}_{43} = \frac{\sqrt{3}\mathbb{X}_{42}[\mathbb{M}_{3,0}^{(a,T_g,2)}(1,-1)] \otimes \mathbb{U}_{24}[\mathbb{T}_{4,0}^{(u,T_g,1)}]}{3} + \frac{\sqrt{3}\mathbb{X}_{43}[\mathbb{M}_{3,1}^{(a,T_g,2)}(1,-1)] \otimes \mathbb{U}_{25}[\mathbb{T}_{4,1}^{(u,T_g,1)}]}{3} + \frac{\sqrt{3}\mathbb{X}_{44}[\mathbb{M}_{3,2}^{(a,T_g,2)}(1,-1)] \otimes \mathbb{U}_{26}[\mathbb{T}_{4,2}^{(u,T_g,1)}]}{3} + \frac{\sqrt{3}\mathbb{X}_{44}[\mathbb{M}_{3,2}^{(u,T_g,2)}(1,-1)] \otimes \mathbb{U}_{26}[\mathbb{T}_{4,2}^{(u,T_g,2)}(1,-1)]}{3} + \frac{\sqrt{3}\mathbb{X}_{44}[\mathbb{M}_{3,2}^{(u,T_g,2)}(1,-1)] \otimes \mathbb{U}_{26}[\mathbb{T}_{4,2}^{(u,T_g,2)}(1,-1)]}{3} + \frac{\sqrt{3}\mathbb{X}_{44}[\mathbb{M}_{3,2}^{(u,T_g,2)}(1,-1)] \otimes \mathbb{U}_{26}[\mathbb{M}_{3,2}^{(u,T_g,2)}(1,-1)]}{3} + \frac{\sqrt{3}\mathbb{X}_{44}[\mathbb{M}_{3,2}^{(u,T_g,2)}(1,-1)]}{3} + \frac{\sqrt{3}\mathbb{X}_{44}[\mathbb{M}_{3,2}^{(u,T_g,2)}(1,-1)]}{$$

$$\begin{split} & \underbrace{ \begin{bmatrix} \text{No. } 44 \end{bmatrix} \ \hat{\mathbb{Q}}_{4}^{(A_g)}(1,-1) \ [\text{M}_3,\text{B}_1] } }_{3} \\ & \underbrace{ \frac{\sqrt{3}\mathbb{X}_{39} [\mathbb{M}_{3,0}^{(a,T_g,1)}(1,-1)] \otimes \mathbb{U}_{24} [\mathbb{T}_{4,0}^{(u,T_g,1)}]}{3} }_{3} + \underbrace{ \frac{\sqrt{3}\mathbb{X}_{40} [\mathbb{M}_{3,1}^{(a,T_g,1)}(1,-1)] \otimes \mathbb{U}_{25} [\mathbb{T}_{4,1}^{(u,T_g,1)}] }{3} }_{3} + \underbrace{ \frac{\sqrt{3}\mathbb{X}_{41} [\mathbb{M}_{3,2}^{(a,T_g,1)}(1,-1)] \otimes \mathbb{U}_{26} [\mathbb{T}_{4,2}^{(u,T_g,1)}] }{3} }_{3} \end{split}$$

$$\hat{\mathbb{Z}}_{45} = \frac{\sqrt{3}\mathbb{X}_{45}[\mathbb{T}_{2,0}^{(a,T_g)}(1,0)] \otimes \mathbb{U}_{21}[\mathbb{T}_{2,0}^{(u,T_g)}]}{3} + \frac{\sqrt{3}\mathbb{X}_{46}[\mathbb{T}_{2,1}^{(a,T_g)}(1,0)] \otimes \mathbb{U}_{22}[\mathbb{T}_{2,1}^{(u,T_g)}]}{3} + \frac{\sqrt{3}\mathbb{X}_{47}[\mathbb{T}_{2,2}^{(a,T_g)}(1,0)] \otimes \mathbb{U}_{23}[\mathbb{T}_{2,2}^{(u,T_g)}]}{3}$$

$$\begin{array}{c} \boxed{\text{No. } 46} \quad \hat{\mathbb{G}}_{3}^{(A_g)}(1,0) \; [M_3,B_1] \\ \\ \hat{\mathbb{Z}}_{46} = -\frac{\sqrt{3}\mathbb{X}_{45}[\mathbb{T}_{2,0}^{(a,T_g)}(1,0)] \otimes \mathbb{U}_{24}[\mathbb{T}_{4,0}^{(u,T_g,1)}]}{3} - \frac{\sqrt{3}\mathbb{X}_{46}[\mathbb{T}_{2,1}^{(a,T_g)}(1,0)] \otimes \mathbb{U}_{25}[\mathbb{T}_{4,1}^{(u,T_g,1)}]}{3} - \frac{\sqrt{3}\mathbb{X}_{47}[\mathbb{T}_{2,2}^{(a,T_g)}(1,0)] \otimes \mathbb{U}_{26}[\mathbb{T}_{4,2}^{(u,T_g,1)}]}{3} \\ \end{array}$$

Table 4: Atomic SAMB group.

| group | bra | ket |
|-------|---|---|
| M_1 | $(s,\uparrow),(s,\downarrow)$ | $(s,\uparrow),(s,\downarrow)$ |
| M_2 | $(s,\uparrow),(s,\downarrow)$ | $(p_x,\uparrow),(p_x,\downarrow),(p_y,\uparrow),(p_y,\downarrow),(p_z,\uparrow),(p_z,\downarrow)$ |
| M_3 | $(p_x,\uparrow),(p_x,\downarrow),(p_y,\uparrow),(p_y,\downarrow),(p_z,\uparrow),(p_z,\downarrow)$ | $(p_x,\uparrow),(p_x,\downarrow),(p_y,\uparrow),(p_y,\downarrow),(p_z,\uparrow),(p_z,\downarrow)$ |
| M_4 | $(p_x,\uparrow),(p_x,\downarrow),(p_y,\uparrow),(p_y,\downarrow),(p_z,\uparrow),(p_z,\downarrow)$ | $(s,\uparrow),(s,\downarrow)$ |

Table 5: Atomic SAMB.

| symbol | type | group | form |
|----------------|------------------------------------|-------|--|
| \mathbb{X}_1 | $\mathbb{Q}_0^{(a,A_g)}$ | M_1 | $\begin{pmatrix} \frac{\sqrt{2}}{2} & 0 \\ 0 & \frac{\sqrt{2}}{2} \end{pmatrix}$ |
| \mathbb{X}_2 | $\mathbb{M}_{1,0}^{(a,T_g)}(1,-1)$ | M_1 | $\begin{pmatrix} 2 & \frac{\sqrt{2}}{2} \\ 0 & \frac{\sqrt{2}}{2} \\ \begin{pmatrix} 0 & \frac{\sqrt{2}}{2} \\ \frac{\sqrt{2}}{2} & 0 \end{pmatrix}$ |
| \mathbb{X}_3 | $\mathbb{M}_{1,1}^{(a,T_g)}(1,-1)$ | M_1 | $\begin{pmatrix} 0 & -\frac{\sqrt{2}i}{2} \\ \frac{\sqrt{2}i}{2} & 0 \end{pmatrix}$ |

Table 5

| symbol | type | group | form |
|-------------------|------------------------------------|----------|--|
| \mathbb{X}_4 | $\mathbb{M}_{1,2}^{(a,T_g)}(1,-1)$ | M_1 | $\begin{pmatrix} \frac{\sqrt{2}}{2} & 0 \\ 0 & -\frac{\sqrt{2}}{2} \end{pmatrix}$ |
| \mathbb{X}_5 | $\mathbb{Q}_{1,0}^{(a,T_u)}$ | M_2 | $\begin{pmatrix} \frac{\sqrt{2}}{2} & 0 & 0 & 0 & 0 & 0\\ 0 & \frac{\sqrt{2}}{2} & 0 & 0 & 0 & 0 \end{pmatrix} \begin{pmatrix} 0 & 0 & \frac{\sqrt{2}}{2} & 0 & 0 & 0\\ 0 & 0 & 0 & \frac{\sqrt{2}}{2} & 0 & 0 & 0 \end{pmatrix}$ |
| \mathbb{X}_6 | $\mathbb{Q}_{1,1}^{(a,T_u)}$ | M_2 | $\begin{pmatrix} 0 & 0 & \frac{\sqrt{2}}{2} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{2}}{2} & 0 & 0 \end{pmatrix}$ |
| \mathbb{X}_7 | $\mathbb{Q}_{1,2}^{(a,T_u)}$ | M_2 | $\begin{pmatrix} 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{2} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{2} \end{pmatrix}$ |
| \mathbb{X}_8 | $\mathbb{Q}_{1,0}^{(a,T_u)}(1,0)$ | M_2 | $ \begin{pmatrix} 0 & 0 & -\frac{i}{2} & 0 & 0 & \frac{1}{2} \\ 0 & 0 & 0 & \frac{i}{2} & -\frac{1}{2} & 0 \end{pmatrix} $ |
| \mathbb{X}_9 | $\mathbb{Q}_{1,1}^{(a,T_u)}(1,0)$ | M_2 | $\begin{pmatrix} \frac{i}{2} & 0 & 0 & 0 & 0 & -\frac{i}{2} \\ 0 & -\frac{i}{2} & 0 & 0 & -\frac{i}{2} & 0 \end{pmatrix}$ |
| \mathbb{X}_{10} | $\mathbb{Q}_{1,2}^{(a,T_u)}(1,0)$ | M_2 | $ \begin{pmatrix} 0 & -\frac{1}{2} & 0 & \frac{i}{2} & 0 & 0 \\ \frac{1}{2} & 0 & \frac{i}{2} & 0 & 0 & 0 \end{pmatrix} $ |
| \mathbb{X}_{11} | $\mathbb{G}_{2,0}^{(a,T_u)}(1,-1)$ | M_2 | $\begin{pmatrix} 0 & 0 & \frac{i}{2} & 0 & 0 & \frac{1}{2} \\ 0 & 0 & 0 & -\frac{i}{2} & -\frac{1}{2} & 0 \end{pmatrix}$ |
| \mathbb{X}_{12} | $\mathbb{G}_{2,1}^{(a,T_u)}(1,-1)$ | M_2 | $egin{pmatrix} rac{i}{2} & 0 & 0 & 0 & 0 & rac{i}{2} \ 0 & -rac{i}{2} & 0 & 0 & rac{i}{2} & 0 \end{pmatrix}$ |
| \mathbb{X}_{13} | $\mathbb{G}_{2,2}^{(a,T_u)}(1,-1)$ | M_2 | $\begin{pmatrix} 0 & \frac{1}{2} & 0 & \frac{i}{2} & 0 & 0 \\ -\frac{1}{2} & 0 & \frac{i}{2} & 0 & 0 & 0 \end{pmatrix}$ |
| \mathbb{X}_{14} | $\mathbb{G}_0^{(a,A_u)}(1,1)$ | M_2 | $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ |
| \mathbb{X}_{15} | $\mathbb{Q}_0^{(a,A_g)}$ | $ m M_3$ | $\begin{pmatrix} \frac{\sqrt{6}}{6} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{6}}{6} & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{6}}{6} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{6}}{6} & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{6} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{6} \end{pmatrix}$ |

Table 5

| Table 5 | | | |
|-------------------|-------------------------------|----------|--|
| symbol | type | group | form |
| \mathbb{X}_{16} | $\mathbb{Q}_0^{(a,A_g)}(1,1)$ | $ m M_3$ | $\begin{pmatrix} 0 & 0 & -\frac{\sqrt{3}i}{6} & 0 & 0 & \frac{\sqrt{3}}{6} \\ 0 & 0 & 0 & \frac{\sqrt{3}i}{6} & -\frac{\sqrt{3}}{6} & 0 \\ \frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{6} \\ 0 & -\frac{\sqrt{3}i}{6} & 0 & 0 & -\frac{\sqrt{3}i}{6} & 0 \\ 0 & -\frac{\sqrt{3}}{6} & 0 & \frac{\sqrt{3}i}{6} & 0 & 0 \\ \frac{\sqrt{3}}{6} & 0 & \frac{\sqrt{3}i}{6} & 0 & 0 & 0 \end{pmatrix}$ |
| \mathbb{X}_{17} | $\mathbb{Q}_{2,0}^{(a,E_g)}$ | $ m M_3$ | $\begin{pmatrix} -\frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{3} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{3} \end{pmatrix}$ |
| \mathbb{X}_{18} | $\mathbb{Q}_{2,1}^{(a,E_g)}$ | $ m M_3$ | $\begin{pmatrix} \frac{1}{2} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{1}{2} & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{1}{2} & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{1}{2} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 &$ |
| \mathbb{X}_{19} | $\mathbb{Q}_{2,0}^{(a,T_g)}$ | $ m M_3$ | $\begin{pmatrix} 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 &$ |
| \mathbb{X}_{20} | $\mathbb{Q}_{2,1}^{(a,T_g)}$ | $ m M_3$ | $\begin{pmatrix} 0 & 0 & 0 & 0 & \frac{1}{2} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{1}{2} \\ 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0$ |

Table 5

| Table 5 | | | |
|-------------------|------------------------------------|----------|--|
| symbol | type | group | form |
| \mathbb{X}_{21} | $\mathbb{Q}_{2,2}^{(a,T_g)}$ | $ m M_3$ | $\begin{pmatrix} 0 & 0 & \frac{1}{2} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{1}{2} & 0 & 0 \\ \frac{1}{2} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{1}{2} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0$ |
| \mathbb{X}_{22} | $\mathbb{Q}_{2,0}^{(a,E_g)}(1,-1)$ | M_3 | $\begin{pmatrix} 0 & 0 & -\frac{\sqrt{6}i}{6} & 0 & 0 & -\frac{\sqrt{6}}{12} \\ 0 & 0 & 0 & \frac{\sqrt{6}i}{6} & \frac{\sqrt{6}}{12} & 0 \\ \frac{\sqrt{6}i}{6} & 0 & 0 & 0 & 0 & \frac{\sqrt{6}i}{12} \\ 0 & -\frac{\sqrt{6}i}{6} & 0 & 0 & \frac{\sqrt{6}i}{12} & 0 \\ 0 & \frac{\sqrt{6}}{12} & 0 & -\frac{\sqrt{6}i}{12} & 0 & 0 \\ -\frac{\sqrt{6}}{12} & 0 & -\frac{\sqrt{6}i}{12} & 0 & 0 & 0 \end{pmatrix}$ |
| \mathbb{X}_{23} | $\mathbb{Q}_{2,1}^{(a,E_g)}(1,-1)$ | $ m M_3$ | $ \begin{pmatrix} 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{4} \\ 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{4} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{4} \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{4} & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{4} & 0 \end{pmatrix} $ |
| \mathbb{X}_{24} | $\mathbb{Q}_{2,0}^{(a,T_g)}(1,-1)$ | M_3 | $ \begin{pmatrix} 0 & 0 & 0 & -\frac{\sqrt{2}}{4} & \frac{\sqrt{2}i}{4} & 0 \\ 0 & 0 & \frac{\sqrt{2}}{4} & 0 & 0 & -\frac{\sqrt{2}i}{4} \\ 0 & \frac{\sqrt{2}}{4} & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{2}}{4} & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{2}i}{4} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{2}i}{4} & 0 & 0 & 0 & 0 \end{pmatrix} $ |
| \mathbb{X}_{25} | $\mathbb{Q}_{2,1}^{(a,T_g)}(1,-1)$ | $ m M_3$ | $\begin{pmatrix} 0 & 0 & 0 & -\frac{\sqrt{2}i}{4} & 0 & 0\\ 0 & 0 & -\frac{\sqrt{2}i}{4} & 0 & 0 & 0\\ 0 & \frac{\sqrt{2}i}{4} & 0 & 0 & -\frac{\sqrt{2}i}{4} & 0\\ \frac{\sqrt{2}i}{4} & 0 & 0 & 0 & \frac{\sqrt{2}i}{4}\\ 0 & 0 & \frac{\sqrt{2}i}{4} & 0 & 0 & 0\\ 0 & 0 & 0 & -\frac{\sqrt{2}i}{4} & 0 & 0 \end{pmatrix}$ |

Table 5

| Table 5 | | | |
|-------------------|------------------------------------|----------|---|
| symbol | type | group | form |
| \mathbb{X}_{26} | $\mathbb{Q}_{2,2}^{(a,T_g)}(1,-1)$ | $ m M_3$ | $\begin{pmatrix} 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{4} \\ 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{4} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{4} \\ 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{4} & 0 \\ 0 & -\frac{\sqrt{2}i}{4} & 0 & \frac{\sqrt{2}}{4} & 0 & 0 \\ -\frac{\sqrt{2}i}{4} & 0 & -\frac{\sqrt{2}}{4} & 0 & 0 & 0 \end{pmatrix}$ $\begin{pmatrix} 0 & 0 & 0 & -\frac{\sqrt{2}}{4} & -\frac{\sqrt{2}i}{4} & 0 \\ 0 & 0 & \frac{\sqrt{2}}{2} & 0 & 0 & 0 \end{pmatrix}$ |
| \mathbb{X}_{27} | $\mathbb{G}_{1,0}^{(a,T_g)}(1,0)$ | M_3 | $\begin{bmatrix} 0 & \frac{\sqrt{2}}{4} & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{2}}{4} & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{2}i}{4} & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{2}i}{4} & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$ |
| \mathbb{X}_{28} | $\mathbb{G}_{1,1}^{(a,T_g)}(1,0)$ | $ m M_3$ | $ \begin{pmatrix} 0 & 0 & 0 & \frac{\sqrt{2}i}{4} & 0 & 0 \\ 0 & 0 & \frac{\sqrt{2}i}{4} & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{2}i}{4} & 0 & 0 & -\frac{\sqrt{2}i}{4} & 0 \\ -\frac{\sqrt{2}i}{4} & 0 & 0 & 0 & \frac{\sqrt{2}i}{4} \\ 0 & 0 & \frac{\sqrt{2}i}{4} & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{2}i}{4} & 0 & 0 \end{pmatrix} $ |
| \mathbb{X}_{29} | $\mathbb{G}_{1,2}^{(a,T_g)}(1,0)$ | $ m M_3$ | $\begin{pmatrix} 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{4} \\ 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{4} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{4} \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{4} & 0 \\ 0 & -\frac{\sqrt{2}i}{4} & 0 & -\frac{\sqrt{2}}{4} & 0 & 0 \\ -\frac{\sqrt{2}i}{4} & 0 & \frac{\sqrt{2}}{4} & 0 & 0 & 0 \end{pmatrix}$ |
| ℤ ₃₀ | $\mathbb{M}_{1,0}^{(a,T_g)}$ | $ m M_3$ | $\begin{pmatrix} 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 &$ |

Table 5

| Table 5 | | | |
|-------------------|-----------------------------------|----------|---|
| symbol | type | group | form |
| \mathbb{X}_{31} | $\mathbb{M}_{1,1}^{(a,T_g)}$ | M_3 | $\begin{pmatrix} 0 & 0 & 0 & 0 & \frac{i}{2} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{i}{2} \\ 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0$ |
| \mathbb{X}_{32} | $\mathbb{M}_{1,2}^{(a,T_g)}$ | $ m M_3$ | $\begin{pmatrix} 0 & 0 & -\frac{i}{2} & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{i}{2} & 0 & 0 \\ \frac{i}{2} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{i}{2} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0$ |
| \mathbb{X}_{33} | $\mathbb{M}_{1,0}^{(a,T_g)}(1,1)$ | $ m M_3$ | $ \begin{pmatrix} 0 & \frac{\sqrt{30}}{15} & 0 & -\frac{\sqrt{30}i}{20} & \frac{\sqrt{30}}{20} & 0\\ \frac{\sqrt{30}}{15} & 0 & \frac{\sqrt{30}i}{20} & 0 & 0 & -\frac{\sqrt{30}}{20}\\ 0 & -\frac{\sqrt{30}i}{20} & 0 & -\frac{\sqrt{30}}{30} & 0 & 0\\ \frac{\sqrt{30}i}{20} & 0 & -\frac{\sqrt{30}}{30} & 0 & 0 & 0\\ \frac{\sqrt{30}i}{20} & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}}{30}\\ 0 & -\frac{\sqrt{30}}{20} & 0 & 0 & -\frac{\sqrt{30}}{30} & 0 \end{pmatrix} $ |
| \mathbb{X}_{34} | $\mathbb{M}_{1,1}^{(a,T_g)}(1,1)$ | M_3 | $\begin{bmatrix} \begin{pmatrix} 0 & \frac{\sqrt{30}i}{30} & 0 & \frac{\sqrt{30}}{20} & 0 & 0 \\ -\frac{\sqrt{30}i}{30} & 0 & \frac{\sqrt{30}}{20} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{30}}{20} & 0 & -\frac{\sqrt{30}i}{15} & \frac{\sqrt{30}}{20} & 0 \\ \frac{\sqrt{30}}{20} & 0 & \frac{\sqrt{30}i}{15} & 0 & 0 & -\frac{\sqrt{30}}{20} \\ 0 & 0 & \frac{\sqrt{30}}{20} & 0 & 0 & \frac{\sqrt{30}i}{30} \\ 0 & 0 & 0 & -\frac{\sqrt{30}}{20} & -\frac{\sqrt{30}i}{30} & 0 \end{pmatrix}$ |
| X35 | $\mathbb{M}_{1,2}^{(a,T_g)}(1,1)$ | M_3 | $ \begin{pmatrix} -\frac{\sqrt{30}}{30} & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{20} \\ 0 & \frac{\sqrt{30}}{30} & 0 & 0 & \frac{\sqrt{30}}{20} & 0 \\ 0 & 0 & -\frac{\sqrt{30}}{30} & 0 & 0 & -\frac{\sqrt{30}i}{20} \\ 0 & 0 & 0 & \frac{\sqrt{30}}{30} & \frac{\sqrt{30}i}{20} & 0 \\ 0 & \frac{\sqrt{30}}{20} & 0 & -\frac{\sqrt{30}i}{20} & \frac{\sqrt{30}i}{15} & 0 \\ \frac{\sqrt{30}}{20} & 0 & \frac{\sqrt{30}i}{20} & 0 & 0 & -\frac{\sqrt{30}}{15} \end{pmatrix} $ |

Table 5

| Table 5 | | | |
|-------------------|--------------------------------------|----------|---|
| symbol | type | group | form |
| \mathbb{X}_{36} | $\mathbb{M}_{1,0}^{(a,T_g)}(1,-1)$ | $ m M_3$ | $\begin{pmatrix} 0 & \frac{\sqrt{6}}{6} & 0 & 0 & 0 & 0 \\ \frac{\sqrt{6}}{6} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{6}}{6} & 0 & 0 \\ 0 & 0 & \frac{\sqrt{6}}{6} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{6} \\ 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{6} & 0 \end{pmatrix}$ |
| \mathbb{X}_{37} | $\mathbb{M}_{1,1}^{(a,T_g)}(1,-1)$ | $ m M_3$ | $\begin{pmatrix} 0 & -\frac{\sqrt{6i}}{6} & 0 & 0 & 0 & 0\\ \frac{\sqrt{6i}}{6} & 0 & 0 & 0 & 0 & 0\\ 0 & 0 & 0 & -\frac{\sqrt{6i}}{6} & 0 & 0\\ 0 & 0 & \frac{\sqrt{6i}}{6} & 0 & 0 & 0\\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6i}}{6} \end{pmatrix}$ |
| \mathbb{X}_{38} | $\mathbb{M}_{1,2}^{(a,T_g)}(1,-1)$ | $ m M_3$ | $\begin{pmatrix} 0 & 0 & 0 & 0 & \frac{\sqrt{6z}}{6} & 0 \end{pmatrix}$ $\begin{pmatrix} \frac{\sqrt{6}}{6} & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{6}}{6} & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{6}}{6} & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{6}}{6} & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{6} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{6} \end{pmatrix}$ |
| \mathbb{X}_{39} | $\mathbb{M}_{3,0}^{(a,T_g,1)}(1,-1)$ | $ m M_3$ | $ \begin{pmatrix} 0 & \frac{\sqrt{5}}{5} & 0 & \frac{1}{10} & -\frac{\sqrt{5}}{10} & 0\\ \frac{\sqrt{5}}{5} & 0 & -\frac{\sqrt{5}i}{10} & 0 & 0 & \frac{\sqrt{5}}{10}\\ 0 & \frac{\sqrt{5}i}{10} & 0 & -\frac{\sqrt{5}}{10} & 0 & 0\\ -\frac{\sqrt{5}i}{10} & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 & 0\\ -\frac{\sqrt{5}}{10} & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{10} \\ \end{pmatrix} $ |
| \mathbb{X}_{40} | $\mathbb{M}_{3,1}^{(a,T_g,1)}(1,-1)$ | $ m M_3$ | $\begin{pmatrix} 0 & \frac{\sqrt{5}i}{10} & 0 & 0 & -\frac{\sqrt{5}i}{10} & 0 \\ 0 & \frac{\sqrt{5}i}{10} & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 \\ -\frac{\sqrt{5}i}{10} & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{5}}{10} & 0 & -\frac{\sqrt{5}i}{5} & -\frac{\sqrt{5}}{10} & 0 \\ -\frac{\sqrt{5}}{10} & 0 & \frac{\sqrt{5}i}{5} & 0 & 0 & \frac{\sqrt{5}}{10} \\ 0 & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 & \frac{\sqrt{5}i}{10} \\ 0 & 0 & 0 & \frac{\sqrt{5}}{10} & -\frac{\sqrt{5}i}{10} & 0 \end{pmatrix}$ |

Table 5

| Table 5 | | | |
|-------------------------|--------------------------------------|----------|---|
| symbol | type | group | form |
| \mathbb{X}_{41} | $\mathbb{M}_{3,2}^{(a,T_g,1)}(1,-1)$ | $ m M_3$ | $\begin{pmatrix} -\frac{\sqrt{5}}{10} & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{10} \\ 0 & \frac{\sqrt{5}}{10} & 0 & 0 & -\frac{\sqrt{5}}{10} & 0 \\ 0 & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 & \frac{\sqrt{5}i}{10} \\ 0 & 0 & 0 & \frac{\sqrt{5}}{10} & -\frac{\sqrt{5}i}{10} & 0 \\ 0 & -\frac{\sqrt{5}}{10} & 0 & \frac{\sqrt{5}i}{10} & \frac{\sqrt{5}}{5} & 0 \\ -\frac{\sqrt{5}}{10} & 0 & -\frac{\sqrt{5}i}{10} & 0 & 0 & -\frac{\sqrt{5}}{5} \end{pmatrix}$ |
| \mathbb{X}_{42} | $\mathbb{M}_{3,0}^{(a,T_g,2)}(1,-1)$ | $ m M_3$ | $ \begin{bmatrix} 0 & 0 & 0 & -\frac{\sqrt{3}i}{6} & -\frac{\sqrt{3}}{6} & 0 \\ 0 & 0 & \frac{\sqrt{3}i}{6} & 0 & 0 & \frac{\sqrt{3}}{6} \\ 0 & -\frac{\sqrt{3}i}{6} & 0 & \frac{\sqrt{3}}{6} & 0 & 0 \\ \frac{\sqrt{3}i}{6} & 0 & \frac{\sqrt{3}}{6} & 0 & 0 & 0 \\ -\frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{6} \\ 0 & \frac{\sqrt{3}}{3} & 0 & 0 & -\frac{\sqrt{3}}{3} & 0 \end{bmatrix} $ |
| \mathbb{X}_{43} | $\mathbb{M}_{3,1}^{(a,T_g,2)}(1,-1)$ | $ m M_3$ | $\begin{bmatrix} 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & \frac{\sqrt{3}}{6} & 0 \\ -\frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{6} \\ 0 & 0 & \frac{\sqrt{3}}{6} & 0 & 0 & -\frac{\sqrt{3}i}{6} \\ 0 & 0 & 0 & -\frac{\sqrt{3}}{6} & \frac{\sqrt{3}i}{6} & 0 \end{bmatrix}$ |
| \mathbb{X}_{44} | $\mathbb{M}_{3,2}^{(a,T_g,2)}(1,-1)$ | $ m M_3$ | $\begin{pmatrix} \frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{6} \\ 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & \frac{\sqrt{3}}{6} & 0 \\ 0 & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & \frac{\sqrt{3}i}{6} \\ 0 & 0 & 0 & \frac{\sqrt{3}}{6} & -\frac{\sqrt{3}i}{6} & 0 \\ 0 & \frac{\sqrt{3}}{6} & 0 & \frac{\sqrt{3}i}{6} & 0 & 0 \\ \frac{\sqrt{3}}{6} & 0 & -\frac{\sqrt{3}i}{6} & 0 & 0 & 0 \end{pmatrix}$ |
| \mathbb{X}_{45} | $\mathbb{T}_{2,0}^{(a,T_g)}(1,0)$ | $ m M_3$ | $ \begin{pmatrix} 0 & 0 & 0 & \frac{\sqrt{6}i}{12} & \frac{\sqrt{6}}{12} & 0\\ 0 & 0 & -\frac{\sqrt{6}i}{12} & 0 & 0 & -\frac{\sqrt{6}}{12}\\ 0 & \frac{\sqrt{6}i}{12} & 0 & \frac{\sqrt{6}}{6} & 0 & 0\\ -\frac{\sqrt{6}i}{12} & 0 & \frac{\sqrt{6}}{6} & 0 & 0 & 0\\ \frac{\sqrt{6}}{12} & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{6}\\ 0 & -\frac{\sqrt{6}}{12} & 0 & 0 & -\frac{\sqrt{6}}{6} & 0 \end{pmatrix} $ |

Table 5

| symbol | type | group | form |
|-------------------|-----------------------------------|----------|--|
| \mathbb{X}_{46} | $\mathbb{T}_{2,1}^{(a,T_g)}(1,0)$ | M_3 | $\begin{pmatrix} 0 & \frac{\sqrt{6}i}{6} & 0 & \frac{\sqrt{6}}{12} & 0 & 0 \\ -\frac{\sqrt{6}i}{6} & 0 & \frac{\sqrt{6}}{12} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{6}}{12} & 0 & 0 & -\frac{\sqrt{6}}{12} & 0 \\ \frac{\sqrt{6}}{12} & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{12} \\ 0 & 0 & -\frac{\sqrt{6}}{12} & 0 & 0 & -\frac{\sqrt{6}i}{6} \\ 0 & 0 & 0 & \frac{\sqrt{6}}{12} & \frac{\sqrt{6}i}{6} & 0 \end{pmatrix}$ |
| \mathbb{X}_{47} | $\mathbb{T}_{2,2}^{(a,T_g)}(1,0)$ | $ m M_3$ | $\begin{pmatrix} \frac{\sqrt{6}}{6} & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{12} \\ 0 & -\frac{\sqrt{6}}{6} & 0 & 0 & -\frac{\sqrt{6}}{12} & 0 \\ 0 & 0 & -\frac{\sqrt{6}}{6} & 0 & 0 & -\frac{\sqrt{6}i}{12} \\ 0 & 0 & 0 & \frac{\sqrt{6}}{6} & \frac{\sqrt{6}i}{12} & 0 \\ 0 & -\frac{\sqrt{6}}{12} & 0 & -\frac{\sqrt{6}i}{12} & 0 & 0 \\ -\frac{\sqrt{6}}{12} & 0 & \frac{\sqrt{6}i}{12} & 0 & 0 & 0 \end{pmatrix}$ |
| \mathbb{X}_{48} | $\mathbb{Q}_{1,0}^{(a,T_{u})}$ | $ m M_4$ | $\begin{pmatrix} \frac{\sqrt{2}}{2} & 0\\ 0 & \frac{\sqrt{2}}{2}\\ 0 & 0\\ 0 & 0\\ 0 & 0\\ 0 & 0 \end{pmatrix}$ |
| \mathbb{X}_{49} | $\mathbb{Q}_{1,1}^{(a,T_u)}$ | $ m M_4$ | $\begin{pmatrix} 0 & 0 \\ 0 & 0 \\ \frac{\sqrt{2}}{2} & 0 \\ 0 & \frac{\sqrt{2}}{2} \\ 0 & 0 \\ 0 & 0 \end{pmatrix}$ |
| \mathbb{X}_{50} | $\mathbb{Q}_{1,2}^{(a,T_u)}$ | $ m M_4$ | $\begin{pmatrix} 0 & 0 \\ 0 & 0 \\ 0 & 0 \\ 0 & 0 \\ \frac{\sqrt{2}}{2} & 0 \\ 0 & \frac{\sqrt{2}}{2} \end{pmatrix}$ |

Table 5

| symbol | type | group | form |
|-------------------|-------------------------------------|----------|---|
| X ₅₁ | $\mathbb{Q}_{1,0}^{(a,T_{u})}(1,0)$ | $ m M_4$ | $\begin{pmatrix} 0 & 0 \\ 0 & 0 \\ \frac{i}{2} & 0 \\ 0 & -\frac{i}{2} \\ 0 & -\frac{1}{2} \\ \frac{1}{2} & 0 \end{pmatrix}$ |
| \mathbb{X}_{52} | $\mathbb{Q}_{1,1}^{(a,T_u)}(1,0)$ | $ m M_4$ | $egin{pmatrix} -rac{i}{2} & 0 \ 0 & rac{i}{2} \ 0 & 0 \ 0 & 0 \ 0 & rac{i}{2} \ i & o \ \end{pmatrix}$ |
| \mathbb{X}_{53} | $\mathbb{Q}_{1,2}^{(a,T_u)}(1,0)$ | $ m M_4$ | $egin{pmatrix} 0 & rac{1}{2} \ -rac{1}{2} & 0 \ 0 & -rac{i}{2} \ -rac{i}{2} & 0 \ 0 & 0 \ 0 & 0 \end{pmatrix}$ |
| \mathbb{X}_{54} | $\mathbb{G}_{2,0}^{(a,T_u)}(1,-1)$ | $ m M_4$ | $\begin{pmatrix} 0 & 0 \\ 0 & 0 \\ -\frac{i}{2} & 0 \\ 0 & \frac{i}{2} \\ 0 & -\frac{1}{2} \\ \frac{1}{2} & 0 \end{pmatrix}$ |
| \mathbb{X}_{55} | $\mathbb{G}_{2,1}^{(a,T_u)}(1,-1)$ | $ m M_4$ | $\begin{pmatrix} 0 & 0 \\ 0 & 0 \\ -\frac{i}{2} & 0 \\ 0 & \frac{i}{2} \\ 0 & -\frac{1}{2} \\ \frac{1}{2} & 0 \end{pmatrix}$ $\begin{pmatrix} -\frac{i}{2} & 0 \\ 0 & \frac{i}{2} \\ 0 & 0 \\ 0 & 0 \\ 0 & 0 \\ 0 & -\frac{i}{2} \\ -\frac{i}{2} & 0 \end{pmatrix}$ |

continued ...

Table 5

| symbol | type | group | form |
|-------------------|------------------------------------|----------|---|
| \mathbb{X}_{56} | $\mathbb{G}_{2,2}^{(a,T_u)}(1,-1)$ | $ m M_4$ | $\begin{pmatrix} 0 & -\frac{1}{2} \\ \frac{1}{2} & 0 \\ 0 & -\frac{i}{2} \\ -\frac{i}{2} & 0 \\ 0 & 0 \\ 0 & 0 \end{pmatrix}$ |

Table 6: Uniform SAMB.

| symbol | type | cluster | form |
|----------------|------------------------------|----------------|---|
| \mathbb{U}_1 | $\mathbb{Q}_0^{(s,A_g)}$ | S ₁ | $\begin{pmatrix} \frac{\sqrt{2}}{4} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{2}}{4} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{2}}{4} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{2}}{4} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{4} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{4} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{4} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{4} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{4} \end{pmatrix}$ |
| \mathbb{U}_2 | $\mathbb{Q}_{1,0}^{(s,T_u)}$ | S_1 | $\begin{pmatrix} \frac{\sqrt{2}}{4} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{2}}{4} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{2}}{4} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{2}}{4} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{4} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{4} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{4} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{4} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{4} \end{pmatrix}$ |

Table 6

| Table 6 | | | |
|----------------|------------------------------|----------------|---|
| symbol | type | cluster | form |
| \mathbb{U}_3 | $\mathbb{Q}_{1,1}^{(s,T_u)}$ | S_1 | $\begin{pmatrix} \frac{\sqrt{2}}{4} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{2}}{4} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{2}}{4} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{2}}{4} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{4} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{4} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{4} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{4} & 0 & 0 \end{pmatrix}$ |
| \mathbb{U}_4 | $\mathbb{Q}_{1,2}^{(s,T_u)}$ | S_1 | $\begin{pmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{4} \end{pmatrix}$ $\begin{pmatrix} \frac{\sqrt{2}}{4} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{2}}{4} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{2}}{4} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{2}}{4} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{4} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{4} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{4} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0$ |
| \mathbb{U}_5 | $\mathbb{Q}_{2,0}^{(s,T_g)}$ | S_1 | $\begin{pmatrix} \frac{\sqrt{2}}{4} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{2}}{4} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{2}}{4} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{2}}{4} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{4} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{4} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0$ |
| \mathbb{U}_6 | $\mathbb{Q}_{2,1}^{(s,T_g)}$ | S_1 | $\begin{pmatrix} \frac{\sqrt{2}}{4} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{2}}{4} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{2}}{4} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{2}}{4} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{4} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{4} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{4} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0$ |

Table 6

| Table 6 | | | |
|-----------------|------------------------------|---------|--|
| symbol | type | cluster | form |
| \mathbb{U}_7 | $\mathbb{Q}_{2,2}^{(s,T_g)}$ | S_1 | $\begin{pmatrix} \frac{\sqrt{2}}{4} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{2}}{4} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{2}}{4} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{2}}{4} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{4} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{4} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{4} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{4} \end{pmatrix}$ |
| \mathbb{U}_8 | $\mathbb{Q}_3^{(s,A_u)}$ | S_1 | $\begin{pmatrix} \frac{\sqrt{2}}{4} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{2}}{4} & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{2}}{4} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{2}}{4} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{4} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{4} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{4} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{4} \end{pmatrix}$ |
| \mathbb{U}_9 | $\mathbb{Q}_0^{(u,A_g)}$ | В1 | $\begin{pmatrix} 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{12} & \frac{\sqrt{6}}{12} & \frac{\sqrt{6}}{12} \\ 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{12} & 0 & \frac{\sqrt{6}}{12} & \frac{\sqrt{6}}{12} \\ 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{12} & \frac{\sqrt{6}}{12} & 0 & \frac{\sqrt{6}}{12} \\ 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{12} & \frac{\sqrt{6}}{12} & 0 & \frac{\sqrt{6}}{12} \\ 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{12} & \frac{\sqrt{6}}{12} & 0 & 0 \\ 0 & \frac{\sqrt{6}}{12} & \frac{\sqrt{6}}{12} & \frac{\sqrt{6}}{12} & 0 & 0 & 0 & 0 \\ \frac{\sqrt{6}}{12} & 0 & \frac{\sqrt{6}}{12} & \frac{\sqrt{6}}{12} & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{6}}{12} & \frac{\sqrt{6}}{12} & 0 & \frac{\sqrt{6}}{12} & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{6}}{12} & \frac{\sqrt{6}}{12} & 0 & \frac{\sqrt{6}}{12} & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{6}}{12} & \frac{\sqrt{6}}{12} & 0 & \frac{\sqrt{6}}{12} & 0 & 0 & 0 & 0 & 0 \end{pmatrix}$ |
| U ₁₀ | $\mathbb{Q}_{1,0}^{(u,T_u)}$ | В1 | $\begin{pmatrix} 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{26}}{52} & 0 & \frac{\sqrt{26}}{26} \\ 0 & 0 & 0 & 0 & -\frac{3\sqrt{26}}{52} & 0 & -\frac{\sqrt{26}}{26} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{26}}{52} & 0 & \frac{3\sqrt{26}}{52} \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{26}}{26} & 0 & \frac{3\sqrt{26}}{52} & 0 \\ 0 & -\frac{3\sqrt{26}}{52} & 0 & -\frac{\sqrt{26}}{26} & 0 & 0 & 0 & 0 \\ \frac{3\sqrt{26}}{52} & 0 & \frac{\sqrt{26}}{26} & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{26}}{26} & 0 & -\frac{3\sqrt{26}}{52} & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{26}}{26} & 0 & \frac{3\sqrt{26}}{52} & 0 & 0 & 0 & 0 & 0 \end{pmatrix}$ |

Table 6

| Table 6 | | | |
|-------------------|------------------------------|----------------|---|
| symbol | type | cluster | form |
| \mathbb{U}_{11} | $\mathbb{Q}_{1,1}^{(u,T_u)}$ | B ₁ | $\begin{pmatrix} 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{26}}{26} & \frac{3\sqrt{26}}{52} & 0 \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{26}}{26} & 0 & 0 & -\frac{3\sqrt{26}}{52} \\ 0 & 0 & 0 & 0 & -\frac{3\sqrt{26}}{52} & 0 & 0 & -\frac{\sqrt{26}}{26} \\ 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{26}}{52} & \frac{\sqrt{26}}{26} & 0 \\ 0 & -\frac{\sqrt{26}}{26} & -\frac{3\sqrt{26}}{52} & 0 & 0 & 0 & 0 \\ \frac{\sqrt{26}}{26} & 0 & 0 & \frac{3\sqrt{26}}{52} & 0 & 0 & 0 & 0 \\ \frac{\sqrt{26}}{26} & 0 & 0 & \frac{3\sqrt{26}}{26} & 0 & 0 & 0 & 0 \\ 0 & -\frac{3\sqrt{26}}{52} & -\frac{\sqrt{26}}{26} & 0 & 0 & 0 & 0 & 0 \end{pmatrix}$ |
| \mathbb{U}_{12} | $\mathbb{Q}_{1,2}^{(u,T_u)}$ | В1 | $ \begin{pmatrix} 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{26}}{26} & \frac{3\sqrt{26}}{52} \\ 0 & 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{26}}{26} & \frac{3\sqrt{26}}{52} & \frac{\sqrt{26}}{26} \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{26}}{26} & -\frac{3\sqrt{26}}{52} & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{3\sqrt{26}}{26} & -\frac{\sqrt{26}}{26} & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{26}}{26} & -\frac{3\sqrt{26}}{52} & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{26}}{26} & -\frac{3\sqrt{26}}{52} & 0 & 0 & 0 & 0 \\ \frac{\sqrt{26}}{26} & \frac{3\sqrt{26}}{52} & -\frac{\sqrt{26}}{26} & 0 & 0 & 0 & 0 \\ \frac{\sqrt{26}}{26} & \frac{3\sqrt{26}}{52} & 0 & 0 & 0 & 0 & 0 \end{pmatrix} $ |
| \mathbb{U}_{13} | $\mathbb{Q}_{2,0}^{(u,E_g)}$ | В1 | $ \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & -\frac{11\sqrt{3}}{84} & -\frac{3\sqrt{3}}{42} & \frac{13\sqrt{3}}{84} \\ 0 & 0 & 0 & 0 & -\frac{11\sqrt{3}}{84} & 0 & \frac{13\sqrt{3}}{84} & -\frac{\sqrt{3}}{42} \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{42} & \frac{13\sqrt{3}}{84} & 0 & -\frac{11\sqrt{3}}{84} \\ 0 & 0 & 0 & 0 & \frac{13\sqrt{3}}{84} & -\frac{\sqrt{3}}{42} & -\frac{11\sqrt{3}}{84} & 0 \\ 0 & -\frac{11\sqrt{3}}{84} & -\frac{\sqrt{3}}{42} & \frac{13\sqrt{3}}{84} & 0 & 0 & 0 & 0 \\ -\frac{11\sqrt{3}}{84} & 0 & \frac{13\sqrt{3}}{84} & -\frac{\sqrt{3}}{42} & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{3}}{84} & \frac{13\sqrt{3}}{84} & 0 & -\frac{11\sqrt{3}}{84} & 0 & 0 & 0 & 0 \\ \frac{13\sqrt{3}}{84} & -\frac{\sqrt{3}}{42} & -\frac{11\sqrt{3}}{84} & 0 & 0 & 0 & 0 & 0 \end{bmatrix} $ |
| U ₁₄ | $\mathbb{Q}_{2,1}^{(u,E_g)}$ | В1 | $\begin{pmatrix} 0 & 0 & 0 & 0 & 0 & \frac{5}{28} & -\frac{2}{7} & \frac{3}{28} \\ 0 & 0 & 0 & 0 & \frac{5}{28} & 0 & \frac{3}{28} & -\frac{2}{7} \\ 0 & 0 & 0 & 0 & -\frac{2}{7} & \frac{3}{28} & 0 & \frac{5}{28} \\ 0 & 0 & 0 & 0 & \frac{3}{28} & -\frac{2}{7} & \frac{5}{28} & 0 \\ 0 & \frac{5}{28} & -\frac{2}{7} & \frac{3}{28} & 0 & 0 & 0 & 0 \\ \frac{5}{28} & 0 & \frac{3}{28} & -\frac{2}{7} & 0 & 0 & 0 & 0 \\ -\frac{2}{7} & \frac{3}{28} & 0 & \frac{5}{28} & 0 & 0 & 0 & 0 \\ \frac{3}{28} & -\frac{2}{7} & \frac{5}{28} & 0 & 0 & 0 & 0 \end{pmatrix}$ |

Table 6

| Table 6 | | | |
|-------------------|--------------------------------|----------------|--|
| symbol | type | cluster | form |
| \mathbb{U}_{15} | $\mathbb{Q}_{2,0}^{(u,T_g)}$ | В1 | $\begin{pmatrix} 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{4} & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{4} \\ 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{4} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{4} & 0 & 0 \\ 0 & 0 & \frac{\sqrt{2}}{4} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{2}}{4} & 0 & 0 & 0 & 0 \\ \frac{\sqrt{2}}{4} & 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{2}}{4} & 0 & 0 & 0 & 0 & 0 \end{pmatrix}$ |
| \mathbb{U}_{16} | $\mathbb{Q}_{2,1}^{(u,T_g)}$ | В1 | $\begin{pmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{4} \\ 0 & 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{4} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{4} & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{4} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{2}}{4} & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{2}}{4} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{2}}{4} & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{2}}{4} & 0 & 0 & 0 & 0 & 0 & 0 \end{pmatrix}$ |
| \mathbb{U}_{17} | $\mathbb{Q}_{2,2}^{(u,T_g)}$ | B ₁ | $\begin{pmatrix} 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{4} & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{4} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0$ |
| \mathbb{U}_{18} | $\mathbb{Q}_{3,0}^{(u,T_u,1)}$ | B ₁ | $ \begin{pmatrix} 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{26}}{26} & 0 & -\frac{3\sqrt{26}}{52} \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{26}}{26} & 0 & \frac{3\sqrt{26}}{52} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{26}}{52} & 0 & \frac{\sqrt{26}}{26} \\ 0 & 0 & 0 & 0 & \frac{3\sqrt{26}}{52} & 0 & -\frac{\sqrt{26}}{26} & 0 \\ 0 & -\frac{\sqrt{26}}{26} & 0 & \frac{3\sqrt{26}}{52} & 0 & 0 & 0 & 0 \\ \frac{\sqrt{26}}{26} & 0 & -\frac{3\sqrt{26}}{52} & 0 & 0 & 0 & 0 \\ 0 & \frac{3\sqrt{26}}{52} & 0 & -\frac{\sqrt{26}}{26} & 0 & 0 & 0 & 0 \\ -\frac{3\sqrt{26}}{52} & 0 & \frac{\sqrt{26}}{26} & 0 & 0 & 0 & 0 \end{pmatrix} $ |

Table 6

| | | 1 / | C |
|--|--------------------------------|----------------|--|
| symbol | type | cluster | form |
| | | | $\begin{pmatrix} 0 & 0 & 0 & 0 & 0 & -\frac{3\sqrt{26}}{52} & \frac{\sqrt{26}}{26} & 0 \\ 0 & 0 & 0 & 0 & 0 \end{pmatrix}$ |
| | | | $\begin{bmatrix} 0 & 0 & 0 & 0 & \frac{3\sqrt{26}}{52} & 0 & 0 & -\frac{\sqrt{26}}{26} \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{26}}{52} & 0 & 0 & \frac{3\sqrt{26}}{26} \end{bmatrix}$ |
| \mathbb{U}_{19} $\mathbb{Q}_{3,1}^{(u)}$ | | | 26 52 |
| | $\mathbb{Q}_{3,1}^{(u,T_u,1)}$ | B_1 | $\begin{array}{cccccccccccccccccccccccccccccccccccc$ |
| 019 | ₹3,1 | D1 | $\begin{array}{c ccccccccccccccccccccccccccccccccccc$ |
| | | | $\begin{bmatrix} -\frac{3\sqrt{26}}{52} & 0 & 0 & \frac{\sqrt{26}}{26} & 0 & 0 & 0 \\ \frac{\sqrt{26}}{26} & 0 & 0 & -\frac{3\sqrt{26}}{52} & 0 & 0 & 0 \end{bmatrix}$ |
| | | | $\begin{array}{c ccccccccccccccccccccccccccccccccccc$ |
| | | | $\left \begin{array}{cccccccccccccccccccccccccccccccccccc$ |
| | | | 1 1 1 1 1 1 1 1 1 1 |
| | | | $ \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & -\frac{52}{52} & \frac{76}{26} \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{26}}{26} & -\frac{3\sqrt{26}}{52} \end{bmatrix} $ |
| | | | $\begin{array}{cccccccccccccccccccccccccccccccccccc$ |
| πт | $(u,T_u,1)$ | D | $\begin{array}{c ccccccccccccccccccccccccccccccccccc$ |
| \mathbb{U}_{20} | $\mathbb{Q}_{3,2}^{(u,T_u,1)}$ | B_1 | $\begin{array}{c ccccccccccccccccccccccccccccccccccc$ |
| | | | $\begin{vmatrix} 0 & 0 & -\frac{\sqrt{26}}{3c} & \frac{3\sqrt{26}}{750} & 0 & 0 & 0 \end{vmatrix}$ |
| | | | $ \begin{array}{c ccccccccccccccccccccccccccccccccccc$ |
| | | | $ \begin{pmatrix} -\frac{3\sqrt{26}}{52} & \frac{\sqrt{26}}{26} & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{26}}{26} & -\frac{3\sqrt{26}}{52} & 0 & 0 & 0 & 0 & 0 \end{pmatrix} $ |
| | | | $\begin{pmatrix} 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{26}i}{26} & 0 & \frac{3\sqrt{26}i}{52} \end{pmatrix}$ |
| | | | $ \begin{array}{cccccccccccccccccccccccccccccccccccc$ |
| | | | $\begin{bmatrix} 0 & 0 & 0 & 0 & 0 & \frac{3\sqrt{26}i}{52} & 0 & \frac{\sqrt{26}i}{26} \end{bmatrix}$ |
| | $=(u,T_a)$ | _ | $\begin{array}{c ccccccccccccccccccccccccccccccccccc$ |
| \mathbb{U}_{21} | $\mathbb{T}_{2,0}^{(u,T_g)}$ | В1 | $\begin{array}{c ccccccccccccccccccccccccccccccccccc$ |
| | | | $ \begin{array}{c ccccccccccccccccccccccccccccccccccc$ |
| | | | $\begin{array}{cccccccccccccccccccccccccccccccccccc$ |
| | | | $\left(\begin{array}{cccccccccccccccccccccccccccccccccccc$ |
| | | | $1 \ / \ 0 \ 0 \ 0 \ 0 \ 3\sqrt{26i} \ \sqrt{26i} \ 0 \ $ |
| | | | $ \begin{array}{cccccccccccccccccccccccccccccccccccc$ |
| | | | $\begin{bmatrix} 1 & 0 & 0 & 0 & \sqrt{\frac{52}{26}i} & 0 & 0 & 3\sqrt{\frac{26}{26}i} \end{bmatrix}$ |
| \mathbb{U}_{22} | (a, T) | | $\begin{bmatrix} 1 & 0 & 0 & 0 & 0 & \sqrt{26}i & 3\sqrt{26}i & 0 \end{bmatrix}$ |
| | $\mathbb{T}_{2,1}^{(u,T_g)}$ | B_1 | $\begin{array}{c ccccccccccccccccccccccccccccccccccc$ |
| | | | $\frac{1}{3}\sqrt{26i}$ 0 $\sqrt{26i}$ 0 0 1 |
| | | | $\begin{bmatrix} 1 & \frac{32}{\sqrt{26}i} & 0 & 0 & -\frac{3\sqrt{26}i}{\sqrt{26}i} & 0 & 0 & 0 \end{bmatrix}$ |
| | | | $\begin{array}{cccccccccccccccccccccccccccccccccccc$ |
| | | <u> </u> | $\frac{1}{10000000000000000000000000000000000$ |

| | $_{ m type}$ | cluster | | | | 101 | rm | | | |
|-------------------|--------------------------------|----------------|---------------------------------|--|--|---|--|--|---|---|
| | | | (0 | 0 | 0 | 0 | 0 | 0 | $\frac{3\sqrt{26}i}{\frac{52}{\sqrt{26}i}}$ | $\frac{\sqrt{26}i}{26}$ $\frac{3\sqrt{26}i}{3\sqrt{26}i}$ |
| | | | 0 | 0 | 0 | 0 | 0_ | 0 | $\frac{\sqrt{26}i}{26}$ | $\frac{3\sqrt{26}i}{52}$ |
| \mathbb{U}_{23} | | | 0 | 0 | 0 | 0 | $-\frac{3\sqrt{26}i}{52}$ $-\frac{\sqrt{26}i}{\sqrt{26}i}$ | $-\frac{\sqrt{26}i}{26}$ $-\frac{3\sqrt{26}i}{26}$ | 0 | 0 |
| | $\mathbb{T}_{2,2}^{(u,T_g)}$ | B_1 | 0 | 0 | 0_ | 0_ | $-\frac{\sqrt{26}i}{26}$ | $-\frac{3\sqrt{26}i}{52}$ | 0 | 0 |
| | ¹ 2,2 | D ₁ | 0 | 0 | $\frac{3\sqrt{26}i}{52}$ | $\frac{\sqrt{26}i}{26}$ | 0 | 0 | 0 | 0 |
| | | | 0_ | 0 | $\frac{\sqrt{26}i}{26}$ | $\frac{3\sqrt{26}i}{52}$ | 0 | 0 | 0 | 0 |
| | | | $-\frac{3\sqrt{26}i}{52}$ | $-\frac{\sqrt{26}i}{26}$ $-\frac{3\sqrt{26}i}{26}$ | 0 | 0 | 0 | 0 | 0 | 0 |
| | | | $\sqrt{-\frac{\sqrt{26}i}{26}}$ | $-\frac{3\sqrt{26i}}{52}$ | 0 | 0 | 0 | 0 | 0 | 0 _/ |
| | | | $\int 0$ | 0 | 0 | 0 | 0 | $\frac{3\sqrt{26}i}{52}$ | 0 | $-\frac{\sqrt{26}i}{26}$ |
| | | | 0 | 0 | 0 | 0 | $-\frac{3\sqrt{26}i}{52}$ | 0 | $\frac{\sqrt{26}i}{26}$ | 0 |
| | | | 0 | 0 | 0 | 0 | 0 | $-\frac{\sqrt{26}i}{26}$ | 0_ | $\frac{3\sqrt{26}i}{52}$ |
| \mathbb{U}_{24} | $\mathbb{T}_{4,0}^{(u,T_g,1)}$ | В1 | 0 | 0 | 0 | 0 | $\frac{\sqrt{26}i}{26}$ | 0 | $-\tfrac{3\sqrt{26}i}{52}$ | 0 |
| 24 | | | 0_ | $\frac{3\sqrt{26}i}{52}$ | 0 | $-\frac{\sqrt{26}i}{26}$ | 0 | 0 | 0 | 0 |
| | | | $-\frac{3\sqrt{26}i}{52}$ | 0 | $\frac{\sqrt{26}i}{26}$ | 0 | 0 | 0 | 0 | 0 |
| | | | 0 | $-\frac{\sqrt{26}i}{26}$ | 0 | $\frac{3\sqrt{26}i}{52}$ | 0 | 0 | 0 | 0 |
| | | | $\frac{\sqrt{26}i}{26}$ | 0 | $-\tfrac{3\sqrt{26}i}{52}$ | 0 | 0 | 0 | 0 | 0 |
| | | | \int_{0}^{∞} | 0 | 0 | 0 | 0 | $-\frac{\sqrt{26}i}{26}$ | $\frac{3\sqrt{26}i}{52}$ | 0 |
| | | | 0 | 0 | 0 | 0 | $\frac{\sqrt{26}i}{26}$ | 0 | 0 | $-\frac{3\sqrt{26}i}{52}$ |
| | | | 0 | 0 | 0 | 0 | $-\tfrac{3\sqrt{26}i}{52}$ | 0 | 0 | $\frac{\sqrt{26}i}{26}$ |
| \mathbb{U}_{25} | $\mathbb{T}_{4,1}^{(u,T_g,1)}$ | В1 | 0 | 0 | 0 | 0 | 0 | $\frac{3\sqrt{26}i}{52}$ | $-\frac{\sqrt{26}i}{26}$ | 0 |
| 20 | | | $0 \over \sqrt{26}i$ | $-\frac{\sqrt{26}i}{26}$ | $\frac{3\sqrt{26}i}{52}$ | $0 \\ 3\sqrt{26}i$ | 0 | 0 | 0 | 0 |
| | | | 26 | 0 | 0 | | 0 | 0 | 0 | 0 |
| | | | $-\frac{3\sqrt{26}i}{52}$ | $\frac{0}{3\sqrt{26}i}$ | $0\\ -\frac{\sqrt{26}i}{}$ | $\frac{\sqrt{26}i}{26}$ | 0 | 0 | 0 | 0 |
| | | | \ 0 | 52 | 26 | 0 | 0 | 0 | $0 \sqrt{26}i$ | $0\\3\sqrt{26}i$ |
| | | | $\int 0$ | 0 | 0 | 0 | 0 | 0 | $-\frac{\sqrt{26i}}{26}$ $3\sqrt{26i}$ | $ \begin{array}{r} 3\sqrt{26i} \\ 52 \\ -\sqrt{26i} \end{array} $ |
| | | | 0 | 0 | 0 | 0 | $\frac{0}{\sqrt{26}i}$ | $0\\3\sqrt{26}i$ | 52 | 26 |
| | | | 0 | 0 | 0 | 0 | $\frac{\frac{\sqrt{26}i}{26}}{3\sqrt{26}i}$ | $-\frac{3\sqrt{26}i}{\sqrt{26}i}$ | 0 | 0 |
| \mathbb{U}_{26} | $\mathbb{T}_{4,2}^{(u,T_g,1)}$ | B_1 | 0 | 0 | $0\\ -\frac{\sqrt{26}i}{}$ | $0\\ \frac{3\sqrt{26}i}{}$ | 52 | 26 | 0 | 0 |
| | -,- | | 0 | 0 | $-\frac{\sqrt{26i}}{26}$ $3\sqrt{26i}$ | $ \begin{array}{r} 5\sqrt{26i} \\ 52 \\ -\sqrt{26i} \end{array} $ | 0 | 0 | 0 | 0 |
| | | | $0 \over \sqrt{26}i$ | $0 \\ 3\sqrt{26}i$ | $\frac{5\sqrt{26i}}{52}$ | $-\frac{\sqrt{26}i}{26}$ | 0 | 0 | 0 | 0 |
| 1 | | | | | | | | | | |

Table 7: Polar harmonics.

| No. | symbol | rank | irrep. | mul. | comp. | form |
|-----|------------------------------|------|--------|------|-------|--|
| 1 | $\mathbb{Q}_0^{(A_g)}$ | 0 | A_g | _ | _ | 1 |
| 2 | $\mathbb{Q}_{1,0}^{(T_u)}$ | 1 | T_u | _ | 0 | x |
| 3 | $\mathbb{Q}_{1,1}^{(T_u)}$ | 1 | T_u | _ | 1 | y |
| 4 | $\mathbb{Q}_{1,2}^{(1u)}$ | 1 | T_u | _ | 2 | z |
| 5 | $\mathbb{Q}_{2,0}^{(E_g)}$ | 2 | E_g | _ | 0 | $-\frac{x^2}{2} - \frac{y^2}{2} + z^2$ |
| 6 | $\mathbb{Q}_{2,1}^{(E_g)}$ | 2 | E_g | _ | 1 | $\frac{\sqrt[2]{3}(x^2-y^2)}{2}$ |
| 7 | $\mathbb{Q}_{2,0}^{(T_g)}$ | 2 | T_g | _ | 0 | $\sqrt{3}yz$ |
| 8 | $\mathbb{Q}_{2,1}^{(T_g)}$ | 2 | T_g | _ | 1 | $\sqrt{3}xz$ |
| 9 | $\mathbb{Q}_{2,2}^{(T_g)}$ | 2 | T_g | _ | 2 | $\sqrt{3}xy$ |
| 10 | $\mathbb{Q}_3^{(A_u)}$ | 3 | A_u | _ | _ | $\sqrt{15}xyz$ |
| 11 | $\mathbb{Q}_{3,0}^{(T_u,1)}$ | 3 | T_u | 1 | 0 | $\frac{x(2x^2-3y^2-3z^2)}{2}$ |
| 12 | $\mathbb{Q}_{3,1}^{(T_u,1)}$ | 3 | T_u | 1 | 1 | $-\frac{x(2x^2-3y^2-3z^2)}{2(3x^2-2y^2+3z^2)}$ |
| 13 | $\mathbb{Q}_{3,2}^{(T_u,1)}$ | 3 | T_u | 1 | 2 | $-\frac{z(3x^2+3y^2-2z^2)}{2}$ |
| 14 | $\mathbb{Q}_{4,0}^{(T_g,1)}$ | 4 | T_g | 1 | 0 | $\frac{\sqrt{35}yz(y-z)(y+z)}{2}$ |
| 15 | $\mathbb{Q}_{4,1}^{(T_g,1)}$ | 4 | T_g | 1 | 1 | $-\frac{\sqrt{35}xz(x-z)(x+z)}{2}$ |
| 16 | $\mathbb{Q}_{4,2}^{(T_g,1)}$ | 4 | T_g | 1 | 2 | $\frac{\sqrt{35}xy(x-y)(x+y)}{2}$ |

Table 8: Axial harmonics.

| No. | symbol | rank | irrep. | mul. | comp. | form |
|-----|----------------------------|------|--------|------|-------|------|
| 1 | $\mathbb{G}_0^{(A_u)}$ | 0 | A_u | _ | _ | 1 |
| 2 | $\mathbb{G}_{1,0}^{(T_g)}$ | 1 | T_g | _ | 0 | X |
| 3 | $\mathbb{G}_{1,1}^{(T_g)}$ | 1 | T_g | _ | 1 | Y |
| 4 | $\mathbb{G}_{1,2}^{(T_g)}$ | 1 | T_g | _ | 2 | Z |

Table 8

| No. | symbol | rank | irrep. | mul. | comp. | form |
|-----|------------------------------|------|--------|------|-------|-----------------------------------|
| 5 | $\mathbb{G}_{2,0}^{(T_u)}$ | 2 | T_u | _ | 0 | $\sqrt{3}YZ$ |
| 6 | $\mathbb{G}_{2,1}^{(T_u)}$ | 2 | T_u | _ | 1 | $\sqrt{3}XZ$ |
| 7 | $\mathbb{G}_{2,2}^{(T_u)}$ | 2 | T_u | _ | 2 | $\sqrt{3}XY$ |
| - 8 | $\mathbb{G}_{3,0}^{(T_g,1)}$ | 3 | T_g | 1 | 0 | $\frac{X(2X^2-3Y^2-3Z^2)}{2}$ |
| 9 | $\mathbb{G}_{3,1}^{(T_g,1)}$ | 3 | T_g | 1 | 1 | $-\frac{Y(3X^2-2Y^2+3Z^2)}{2}$ |
| 10 | $\mathbb{C}^{(T_g,1)}$ | 3 | T_g | 1 | 2 | $-\frac{Z(3X^2+3Y^2-2Z^2)}{2}$ |
| 11 | $\mathbb{C}^{(T_g,2)}$ | 3 | T_g | 2 | 0 | $\frac{\sqrt{15}X(Y-Z)(Y+Z)}{2}$ |
| 12 | $\mathbb{G}^{(T_g,2)}$ | 3 | T_g | 2 | 1 | $-\frac{\sqrt{15}Y(X-Z)(X+Z)}{2}$ |
| 13 | $\mathbb{G}_{3,2}^{3,1}$ | 3 | T_g | 2 | 2 | $\frac{\sqrt{15}Z(X-Y)(X+Y)}{2}$ |

 \bullet Group info.: Generator = 2001, 2010, $3^+_{\ 111},\ -1$

Table 9: Conjugacy class.

| rep. SO | symmetry operations |
|-------------------------------|--|
| 1 | 1 |
| 2001 | $2_{001}, 2_{100}, 2_{010}$ |
| 3 ⁺ ₁₁₁ | $3_{111}^+, 3_{1-1-1}^+, 3_{-11-1}^+, 3_{-1-11}^+$ |
| 3-111 | $\begin{bmatrix} 3_{111}^-, \ 3_{1-1-1}^-, \ 3_{-11-1}^-, \ 3_{-1-11}^- \end{bmatrix}$ |
| -1 | -1 |
| m ₀₀₁ | $m_{001}, m_{100}, m_{010}$ |
| -3^{+}_{111} | $\begin{bmatrix} -3^{+}_{111}, & -3^{+}_{1-1-1}, & -3^{+}_{-11-1}, & -3^{+}_{-1-11} \end{bmatrix}$ |
| -3^{-}_{111} | $\begin{bmatrix} -3^{-}_{111}, & -3^{-}_{1-1-1}, & -3^{-}_{-11-1}, & -3^{-}_{-1-11} \end{bmatrix}$ |

Table 10: Symmetry operations.

| No. | SO | No. | SO | No. | SO | No. | SO | No. | SO |
|-----|-----------------|-----|------------------|-----|------------------|-----|------------------|-----|-------------------------------|
| 1 | 1 | 2 | 2_{001} | 3 | 2_{100} | 4 | 2_{010} | 5 | 3 ⁺ ₁₁₁ |
| 6 | 3^{+}_{1-1-1} | 7 | 3^{+}_{-11-1} | 8 | 3^{+}_{-1-11} | 9 | $3^{-}_{\ 111}$ | 10 | 3^{-}_{1-1-1} |
| 11 | 3^{-}_{-11-1} | 12 | 3^{-}_{-1-11} | 13 | -1 | 14 | m_{001} | 15 | m_{100} |
| 16 | m_{010} | 17 | -3^{+}_{111} | 18 | -3^{+}_{1-1-1} | 19 | -3^{+}_{-11-1} | 20 | -3^{+}_{-1-11} |
| 21 | -3^{-}_{111} | 22 | -3^{-}_{1-1-1} | 23 | -3^{-}_{-11-1} | 24 | -3^{-}_{-1-11} | | |

Table 11: Character table.

| | 1 | 2001 | 3 ⁺ ₁₁₁ | 3-111 | -1 | m ₀₀₁ | -3^{+}_{111} | -3^{-}_{111} |
|-------------|---|------|-------------------------------|------------|----|------------------|----------------|----------------|
| A_g | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| $E_g^{(a)}$ | 1 | 1 | ω^* | ω | 1 | 1 | ω^* | ω |
| $E_g^{(b)}$ | 1 | 1 | ω | ω^* | 1 | 1 | ω | ω^* |
| T_g | 3 | -1 | 0 | 0 | 3 | -1 | 0 | 0 |
| A_u | 1 | 1 | 1 | 1 | -1 | -1 | -1 | -1 |
| $E_u^{(a)}$ | 1 | 1 | ω^* | ω | -1 | -1 | $-\omega^*$ | $-\omega$ |
| $E_u^{(b)}$ | 1 | 1 | ω | ω^* | -1 | -1 | $-\omega$ | $-\omega^*$ |
| T_u | 3 | -1 | 0 | 0 | -3 | 1 | 0 | 0 |

Table 12: Parity conversion.

| \leftrightarrow | \leftrightarrow | \leftrightarrow | \leftrightarrow | \leftrightarrow |
|-------------------------|-------------------------|-------------------------|-------------------|-------------------|
| $A_g (A_u)$ | $E_g^{(a)} (E_u^{(a)})$ | $E_g^{(b)} (E_u^{(b)})$ | T_g (T_u) | $A_u (A_g)$ |
| $E_u^{(a)} (E_g^{(a)})$ | $E_u^{(b)} (E_g^{(b)})$ | $T_u (T_g)$ | | |

Table 13: Symmetric product, $[\Gamma \otimes \Gamma']_+$.

| | A_g | $E_g^{(a)}$ | $E_g^{(b)}$ | T_g | A_u | $E_u^{(a)}$ | $E_u^{(b)}$ | T_u |
|--|-------|-------------------------|-------------|-------------------------------------|--------------------------|-------------------------|-------------|--------------------------------------|
| A_g | A_g | $E_g^{(a)}$ $E_g^{(b)}$ | $E_g^{(b)}$ | T_g | A_u | $E_u^{(a)}$ | $E_u^{(b)}$ | T_u |
| $E_g^{(a)}$ | | $E_g^{(b)}$ | A_g | T_g | $E_u^{(a)} \\ E_u^{(b)}$ | $E_u^{(b)}$ | A_u | T_u |
| $E_g^{(b)}$ | | | $E_g^{(a)}$ | T_g | $E_u^{(b)}$ | A_u | $E_u^{(a)}$ | T_u |
| $E_g^{(a)}$ $E_g^{(b)}$ T_g | | | | $A_g + E_g^{(a)} + E_g^{(b)} + T_g$ | T_u | T_u | T_u | $A_u + E_u^{(a)} + E_u^{(b)} + 2T_u$ |
| A_u | | | | | A_g | $E_g^{(a)}$ $E_g^{(b)}$ | $E_g^{(b)}$ | T_g |
| $ \begin{array}{c} A_u \\ E_u^{(a)} \\ E_u^{(b)} \end{array} $ | | | | | | $E_g^{(b)}$ | A_g | T_g |
| $E_u^{(b)}$ | | | | | | | $E_g^{(a)}$ | T_g |
| T_u | | | | | | | | $A_g + E_g^{(a)} + E_g^{(b)} + T_g$ |

Table 14: Anti-symmetric product, $[\Gamma \otimes \Gamma]_-$.

| A_g | $E_g^{(a)}$ | $E_g^{(b)}$ | T_g | A_u | $E_u^{(a)}$ | $E_u^{(b)}$ | T_u |
|-------|-------------|-------------|-------|-------|-------------|-------------|-------|
| _ | _ | _ | T_g | _ | _ | _ | T_g |

Table 15: Virtual-cluster sites.

| No. | position | No. | position | No. | position | No. | position |
|-----|--|-----|---|-----|---|-----|---|
| 1 | (3 2 1) | 2 | $\begin{pmatrix} -3 & -2 & 1 \end{pmatrix}$ | 3 | $\begin{pmatrix} 3 & -2 & -1 \end{pmatrix}$ | 4 | $\begin{pmatrix} -3 & 2 & -1 \end{pmatrix}$ |
| 5 | $\begin{pmatrix} 1 & 3 & 2 \end{pmatrix}$ | 6 | $\begin{pmatrix} -1 & -3 & 2 \end{pmatrix}$ | 7 | $\begin{pmatrix} 1 & -3 & -2 \end{pmatrix}$ | 8 | $\begin{pmatrix} -1 & 3 & -2 \end{pmatrix}$ |
| 9 | $\begin{pmatrix} 2 & 1 & 3 \end{pmatrix}$ | 10 | $\begin{pmatrix} -2 & 1 & -3 \end{pmatrix}$ | 11 | $\begin{pmatrix} -2 & -1 & 3 \end{pmatrix}$ | 12 | $\begin{pmatrix} 2 & -1 & -3 \end{pmatrix}$ |
| 13 | $\begin{pmatrix} -3 & -2 & -1 \end{pmatrix}$ | 14 | $\begin{pmatrix} 3 & 2 & -1 \end{pmatrix}$ | 15 | $\begin{pmatrix} -3 & 2 & 1 \end{pmatrix}$ | 16 | $\begin{pmatrix} 3 & -2 & 1 \end{pmatrix}$ |
| 17 | $\begin{pmatrix} -1 & -3 & -2 \end{pmatrix}$ | 18 | $\begin{pmatrix} 1 & 3 & -2 \end{pmatrix}$ | 19 | $\begin{pmatrix} -1 & 3 & 2 \end{pmatrix}$ | 20 | $\begin{pmatrix} 1 & -3 & 2 \end{pmatrix}$ |
| 21 | $\begin{pmatrix} -2 & -1 & -3 \end{pmatrix}$ | 22 | $\begin{pmatrix} 2 & -1 & 3 \end{pmatrix}$ | 23 | $\begin{pmatrix} 2 & 1 & -3 \end{pmatrix}$ | 24 | $\begin{pmatrix} -2 & 1 & 3 \end{pmatrix}$ |

Table 16: Virtual-cluster basis.

| symbol | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|----------------------------|--|---|---|---|--|---|---|---|---|---|
| $\mathbb{Q}_0^{(A_g)}$ | $\frac{\sqrt{6}}{12}$ | $\frac{\sqrt{6}}{12}$ | $\frac{\sqrt{6}}{12}$ | $\frac{\sqrt{6}}{12}$ | $\frac{\sqrt{6}}{12}$ | $\frac{\sqrt{6}}{12}$ | $\frac{\sqrt{6}}{12}$ | $\frac{\sqrt{6}}{12}$ | $\frac{\sqrt{6}}{12}$ | $\frac{\sqrt{6}}{12}$ |
| | $\frac{\sqrt{6}}{12}$ | $\frac{\sqrt{6}}{12}$ | $\frac{\sqrt{6}}{12}$ | $\frac{\sqrt{6}}{12}$ | $\frac{\sqrt{6}}{12}$ | $\frac{\sqrt{6}}{12}$ | $\frac{\sqrt{6}}{12}$ | $\frac{\sqrt{6}}{12}$ | $\frac{\sqrt{6}}{12}$ | $\frac{\sqrt{6}}{12}$ |
| | $\frac{\sqrt{6}}{12}$ | $\frac{\sqrt{6}}{12}$ | $\frac{\sqrt{6}}{12}$ | $\frac{\sqrt{6}}{12}$ | | | | | | |
| $\mathbb{Q}_{1,0}^{(T_u)}$ | $\frac{3\sqrt{7}}{28}$ | $-\frac{3\sqrt{7}}{28}$ | $\frac{3\sqrt{7}}{28}$ | $-\frac{3\sqrt{7}}{28}$ | $\frac{\sqrt{7}}{28}$ | $-\frac{\sqrt{7}}{28}$ | $\frac{\sqrt{7}}{28}$ | $-\frac{\sqrt{7}}{28}$ | $\frac{\sqrt{7}}{14}$ | $-\frac{\sqrt{7}}{14}$ |
| | $-\frac{\sqrt{7}}{14}$ | $\frac{\sqrt{7}}{14}$ | $-\frac{3\sqrt{7}}{28}$ | $\frac{3\sqrt{7}}{28}$ | $-\frac{3\sqrt{7}}{28}$ | $\frac{3\sqrt{7}}{28}$ | $-\frac{\sqrt{7}}{28}$ | $\frac{\sqrt{7}}{28}$ | $-\frac{\sqrt{7}}{28}$ | $\frac{\sqrt{7}}{28}$ |
| | $-\frac{\sqrt{7}}{14}$ | $\frac{\sqrt{7}}{14}$ | $\frac{\sqrt{7}}{14}$ | $-\frac{\sqrt{7}}{14}$ | | | | | | |
| $\mathbb{Q}_{1,1}^{(T_u)}$ | $\frac{\sqrt{7}}{14}$ | $-\frac{\sqrt{7}}{14}$ | $-\frac{\sqrt{7}}{14}$ | $\frac{\sqrt{7}}{14}$ | $\frac{3\sqrt{7}}{28}$ | $-\frac{3\sqrt{7}}{28}$ | $-\frac{3\sqrt{7}}{28}$ | $\frac{3\sqrt{7}}{28}$ | $\frac{\sqrt{7}}{28}$ | $\frac{\sqrt{7}}{28}$ |
| | $-\frac{\sqrt{7}}{28}$ | $-\frac{\sqrt{7}}{28}$ | $-\frac{\sqrt{7}}{14}$ | $\frac{\sqrt{7}}{14}$ | $\frac{\sqrt{7}}{14}$ | $-\frac{\sqrt{7}}{14}$ | $-\frac{3\sqrt{7}}{28}$ | $\frac{3\sqrt{7}}{28}$ | $\frac{3\sqrt{7}}{28}$ | $-\frac{3\sqrt{7}}{28}$ |
| (m.) | $-\frac{\sqrt{7}}{28}$ $\frac{\sqrt{7}}{28}$ | $-\frac{\sqrt{7}}{28}$ $\frac{\sqrt{7}}{28}$ | $\frac{\sqrt{7}}{28}$ | $\frac{\sqrt{7}}{28}$ | | | | | | |
| $\mathbb{Q}_{1,2}^{(T_u)}$ | $\frac{\sqrt{7}}{28}$ | $\frac{\sqrt{7}}{28}$ | $-\frac{\sqrt{7}}{28}$ | $-\frac{\sqrt{7}}{28}$ | $\frac{\sqrt{7}}{14}$ | $\frac{\sqrt{7}}{14}$ | $-\frac{\sqrt{7}}{14}$ | $-\frac{\sqrt{7}}{14}$ | $\frac{3\sqrt{7}}{28}$ | $-\frac{3\sqrt{7}}{28}$ |
| | $\frac{3\sqrt{7}}{28}$ | $-\frac{3\sqrt{7}}{28}$ | $-\frac{\sqrt{7}}{28}$ | $-\frac{\sqrt{7}}{28}$ | $\frac{\sqrt{7}}{28}$ | $\frac{\sqrt{7}}{28}$ | $-\frac{\sqrt{7}}{14}$ | $-\frac{\sqrt{7}}{14}$ | $\frac{\sqrt{7}}{14}$ | $\frac{\sqrt{7}}{14}$ |
| (E _a) | $-\frac{3\sqrt{7}}{28}$ | $\frac{3\sqrt{7}}{28}$ | $-\frac{3\sqrt{7}}{28}$ | $\frac{3\sqrt{7}}{28}$ | /0 | <u> </u> | /0 | <u></u> | 10. (5 | 10 /0 |
| $\mathbb{Q}_{2,0}^{(Eg)}$ | $-\frac{11\sqrt{3}}{84}$ | $-\frac{11\sqrt{3}}{84}$ | $-\frac{11\sqrt{3}}{84}$ | $-\frac{11\sqrt{3}}{84}$ | $-\frac{\sqrt{3}}{42}$ | $-\frac{\sqrt{3}}{42}$ | $-\frac{\sqrt{3}}{42}$ | $-\frac{\sqrt{3}}{42}$ | $\frac{13\sqrt{3}}{84}$ | $\frac{13\sqrt{3}}{84}$ |
| | $\frac{13\sqrt{3}}{84}$ | $\frac{13\sqrt{3}}{84}$ | $-\frac{11\sqrt{3}}{84}$ | $-\frac{11\sqrt{3}}{84}$ | $-\frac{11\sqrt{3}}{84}$ | $-\frac{11\sqrt{3}}{84}$ | $-\frac{\sqrt{3}}{42}$ | $-\frac{\sqrt{3}}{42}$ | $-\frac{\sqrt{3}}{42}$ | $-\frac{\sqrt{3}}{42}$ |
| (E_a) | $\frac{13\sqrt{3}}{84}$ | 13√3 84 | $\frac{13\sqrt{3}}{84}$ | $\frac{13\sqrt{3}}{84}$ | | 2 | | | | |
| $\mathbb{Q}_{2,1}^{(E_g)}$ | $\frac{5}{28}$ | $\frac{5}{28}$ | $\frac{5}{28}$ | $\frac{5}{28}$ | $-\frac{2}{7}$ | $-\frac{2}{7}$ | $-\frac{2}{7}$ | $-\frac{2}{7}$ | $\frac{3}{28}$ | $\frac{3}{28}$ |
| | $\frac{3}{28}$ | $\frac{3}{28}$ | $\frac{5}{28}$ | $\frac{5}{28}$ | $\frac{5}{28}$ | $\frac{5}{28}$ | $-\frac{2}{7}$ | $-\frac{2}{7}$ | $-\frac{2}{7}$ | $-\frac{2}{7}$ |
| $\mathbb{Q}_{2,0}^{(T_g)}$ | $\frac{\frac{3}{28}}{\frac{\sqrt{2}}{14}}$ | $\frac{3}{28}$ | $\frac{\frac{3}{28}}{\frac{\sqrt{2}}{14}}$ | $\frac{\frac{3}{28}}{-\frac{\sqrt{2}}{14}}$ | $3\sqrt{2}$ | $3\sqrt{2}$ | $3\sqrt{2}$ | $3\sqrt{2}$ | $3\sqrt{2}$ | $-\frac{3\sqrt{2}}{28}$ |
| $\mathbb{Q}_{2,0}$ | $-\frac{3\sqrt{2}}{28}$ | $-\frac{\sqrt{2}}{14}$ $\frac{3\sqrt{2}}{28}$ | $\frac{\sqrt{2}}{14}$ $\frac{\sqrt{2}}{14}$ | $-\frac{\sqrt{2}}{14}$ $-\frac{\sqrt{2}}{14}$ | $\frac{3\sqrt{2}}{14}$ $\frac{\sqrt{2}}{14}$ | $-\frac{3\sqrt{2}}{14} \\ -\frac{\sqrt{2}}{14}$ | $\frac{3\sqrt{2}}{14}$ $\frac{3\sqrt{2}}{14}$ | $-\frac{3\sqrt{2}}{14}$ $-\frac{3\sqrt{2}}{14}$ | $\frac{3\sqrt{2}}{28}$ $\frac{3\sqrt{2}}{14}$ | $-\frac{3\sqrt{2}}{28}$ $-\frac{3\sqrt{2}}{14}$ |
| | $\frac{3\sqrt{2}}{28}$ | $-\frac{3\sqrt{2}}{28}$ | $-\frac{3\sqrt{2}}{28}$ | $\frac{3\sqrt{2}}{28}$ | 14 | 14 | 14 | 14 | 14 | 14 |
| $\mathbb{Q}_{2,1}^{(T_g)}$ | $\frac{3\sqrt{2}}{28}$ | $-\frac{3\sqrt{2}}{28}$ | $-\frac{3\sqrt{2}}{28}$ | $\frac{3\sqrt{2}}{28}$ | $\frac{\sqrt{2}}{14}$ | $-\frac{\sqrt{2}}{14}$ | $-\frac{\sqrt{2}}{14}$ | $\frac{\sqrt{2}}{14}$ | $\frac{3\sqrt{2}}{14}$ | $\frac{3\sqrt{2}}{14}$ |
| ~2,1 | $-\frac{3\sqrt{2}}{14}$ | $-\frac{3\sqrt{2}}{14}$ | $\frac{3\sqrt{2}}{28}$ | $-\frac{3\sqrt{2}}{28}$ | $-\frac{3\sqrt{2}}{28}$ | $\frac{3\sqrt{2}}{28}$ | $\frac{\sqrt{2}}{14}$ | $-\frac{\sqrt{2}}{14}$ | $-\frac{\sqrt{2}}{14}$ | $\frac{\sqrt{2}}{14}$ |
| | $\frac{3\sqrt{2}}{14}$ | $\frac{3\sqrt{2}}{14}$ | $-\frac{3\sqrt{2}}{14}$ | $-\frac{3\sqrt{2}}{14}$ | 20 | 20 | 14 | 14 | 14 | 14 |
| $\mathbb{Q}_{2,2}^{(T_g)}$ | $\frac{3\sqrt{2}}{14}$ | $\frac{3\sqrt{2}}{14}$ | $-\frac{3\sqrt{2}}{14}$ | $-\frac{3\sqrt{2}}{14}$ | $\frac{3\sqrt{2}}{28}$ | $\frac{3\sqrt{2}}{28}$ | $-\frac{3\sqrt{2}}{28}$ | $-\frac{3\sqrt{2}}{28}$ | $\frac{\sqrt{2}}{14}$ | $-\frac{\sqrt{2}}{14}$ |
| -,- | $\frac{\sqrt{2}}{14}$ | $-\frac{\sqrt{2}}{14}$ | $\frac{3\sqrt{2}}{14}$ | $\frac{3\sqrt{2}}{14}$ | $-\frac{3\sqrt{2}}{14}$ | $-\frac{3\sqrt{2}}{14}$ | $\frac{3\sqrt{2}}{28}$ | $\frac{3\sqrt{2}}{28}$ | $-\frac{3\sqrt{2}}{28}$ | $-\frac{3\sqrt{2}}{28}$ |
| | $\frac{\sqrt{2}}{14}$ | $-\frac{\sqrt{2}}{14}$ | $\frac{\sqrt{2}}{14}$ | $-\frac{\sqrt{2}}{14}$ | | | | | | |
| $\mathbb{Q}_3^{(A_u)}$ | $\frac{\sqrt{6}}{12}$ | $\frac{\sqrt{6}}{12}$ | $\frac{\sqrt{6}}{12}$ | $\frac{\sqrt{6}}{12}$ | $\frac{\sqrt{6}}{12}$ | $\frac{\sqrt{6}}{12}$ | $\frac{\sqrt{6}}{12}$ | $\frac{\sqrt{6}}{12}$ | $\frac{\sqrt{6}}{12}$ | $\frac{\sqrt{6}}{12}$ |
| | $\frac{\sqrt{6}}{12}$ | $\frac{\sqrt{6}}{12}$ | $-\frac{\sqrt{6}}{12}$ | $-\frac{\sqrt{6}}{12}$ | $-\frac{\sqrt{6}}{12}$ | $-\frac{\sqrt{6}}{12}$ | $-\frac{\sqrt{6}}{12}$ | $-\frac{\sqrt{6}}{12}$ | $-\frac{\sqrt{6}}{12}$ | $-\frac{\sqrt{6}}{12}$ |

Table 16

| symbol | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|-------------------------------|--------------------------------|-------------------------------|--------------------------------|
| | $-\frac{\sqrt{6}}{12}$ | $-\frac{\sqrt{6}}{12}$ | $-\frac{\sqrt{6}}{12}$ | $-\frac{\sqrt{6}}{12}$ | | | | | | |
| $\mathbb{Q}_{3,0}^{(T_u,1)}$ | $\frac{\sqrt{6}}{12}$ | $-\frac{\sqrt{6}}{12}$ | $\frac{\sqrt{6}}{12}$ | $-\frac{\sqrt{6}}{12}$ | $-\frac{\sqrt{6}}{12}$ | $\frac{\sqrt{6}}{12}$ | $-\frac{\sqrt{6}}{12}$ | $\frac{\sqrt{6}}{12}$ | $-\frac{\sqrt{6}}{12}$ | $\frac{\sqrt{6}}{12}$ |
| | $\frac{\sqrt{6}}{12}$ | $-\frac{\sqrt{6}}{12}$ | $-\frac{\sqrt{6}}{12}$ | $\frac{\sqrt{6}}{12}$ | $-\frac{\sqrt{6}}{12}$ | $\frac{\sqrt{6}}{12}$ | $\frac{\sqrt{6}}{12}$ | $-\frac{\sqrt{6}}{12}$ | $\frac{\sqrt{6}}{12}$ | $-\frac{\sqrt{6}}{12}$ |
| | $\frac{\sqrt{6}}{12}$ | $-\frac{\sqrt{6}}{12}$ | $-\frac{\sqrt{6}}{12}$ | $\frac{\sqrt{6}}{12}$ | | | | | | |
| $\mathbb{Q}_{3,1}^{(T_u,1)}$ | $-\frac{\sqrt{6}}{12}$ | $\frac{\sqrt{6}}{12}$ | $\frac{\sqrt{6}}{12}$ | $-\frac{\sqrt{6}}{12}$ | $\frac{\sqrt{6}}{12}$ | $-\frac{\sqrt{6}}{12}$ | $-\frac{\sqrt{6}}{12}$ | $\frac{\sqrt{6}}{12}$ | $-\frac{\sqrt{6}}{12}$ | $-\frac{\sqrt{6}}{12}$ |
| | $\frac{\sqrt{6}}{12}$ | $\frac{\sqrt{6}}{12}$ | $\frac{\sqrt{6}}{12}$ | $-\frac{\sqrt{6}}{12}$ | $-\frac{\sqrt{6}}{12}$ | $\frac{\sqrt{6}}{12}$ | $-\frac{\sqrt{6}}{12}$ | $\frac{\sqrt{6}}{12}$ | $\frac{\sqrt{6}}{12}$ | $-\frac{\sqrt{6}}{12}$ |
| | $\frac{\sqrt{6}}{12}$ | $\frac{\sqrt{6}}{12}$ | $-\frac{\sqrt{6}}{12}$ | $-\frac{\sqrt{6}}{12}$ | | | | | | |
| $\mathbb{Q}_{3,2}^{(T_u,1)}$ | $-\frac{\sqrt{6}}{12}$ | $-\frac{\sqrt{6}}{12}$ | $\frac{\sqrt{6}}{12}$ | $\frac{\sqrt{6}}{12}$ | $-\frac{\sqrt{6}}{12}$ | $-\frac{\sqrt{6}}{12}$ | $\frac{\sqrt{6}}{12}$ | $\frac{\sqrt{6}}{12}$ | $\frac{\sqrt{6}}{12}$ | $-\frac{\sqrt{6}}{12}$ |
| | $\frac{\sqrt{6}}{12}$ | $-\frac{\sqrt{6}}{12}$ | $\frac{\sqrt{6}}{12}$ | $\frac{\sqrt{6}}{12}$ | $-\frac{\sqrt{6}}{12}$ | $-\frac{\sqrt{6}}{12}$ | $\frac{\sqrt{6}}{12}$ | $\frac{\sqrt{6}}{12}$ | $-\frac{\sqrt{6}}{12}$ | $-\frac{\sqrt{6}}{12}$ |
| | $-\frac{\sqrt{6}}{12}$ | $\frac{\sqrt{6}}{12}$ | $-\frac{\sqrt{6}}{12}$ | $\frac{\sqrt{6}}{12}$ | | | | | | |
| $\mathbb{Q}_{3,0}^{(T_u,2)}$ | $\frac{\sqrt{21}}{84}$ | $-\frac{\sqrt{21}}{84}$ | $\frac{\sqrt{21}}{84}$ | $-\frac{\sqrt{21}}{84}$ | $\frac{5\sqrt{21}}{84}$ | $-\frac{5\sqrt{21}}{84}$ | $\frac{5\sqrt{21}}{84}$ | $-\frac{5\sqrt{21}}{84}$ | $-\frac{\sqrt{21}}{21}$ | $\frac{\sqrt{21}}{21}$ |
| , | $\frac{\sqrt{21}}{21}$ | $-\frac{\sqrt{21}}{21}$ | $-\frac{\sqrt{21}}{84}$ | $\frac{\sqrt{21}}{84}$ | $-\frac{\sqrt{21}}{84}$ | $\frac{\sqrt{21}}{84}$ | $-\frac{5\sqrt{21}}{84}$ | $\frac{5\sqrt{21}}{84}$ | $-\frac{5\sqrt{21}}{84}$ | $\frac{5\sqrt{21}}{84}$ |
| | $\frac{\sqrt{21}}{21}$ | $-\frac{\sqrt{21}}{21}$ | $-\frac{\sqrt{21}}{21}$ | $\frac{\sqrt{21}}{21}$ | | | | | | |
| $\mathbb{Q}_{3,1}^{(T_u,2)}$ | $-\frac{\sqrt{21}}{21}$ | $\frac{\sqrt{21}}{21}$ | $\frac{\sqrt{21}}{21}$ | $-\frac{\sqrt{21}}{21}$ | $\frac{\sqrt{21}}{84}$ | $-\frac{\sqrt{21}}{84}$ | $-\frac{\sqrt{21}}{84}$ | $\frac{\sqrt{21}}{84}$ | $\frac{5\sqrt{21}}{84}$ | $\frac{5\sqrt{21}}{84}$ |
| -, | $-\frac{5\sqrt{21}}{84}$ | $-\frac{5\sqrt{21}}{84}$ | $\frac{\sqrt{21}}{21}$ | $-\frac{\sqrt{21}}{21}$ | $-\frac{\sqrt{21}}{21}$ | $\frac{\sqrt{21}}{21}$ | $-\frac{\sqrt{21}}{84}$ | $\frac{\sqrt{21}}{84}$ | $\frac{\sqrt{21}}{84}$ | $-\frac{\sqrt{21}}{84}$ |
| | $-\frac{5\sqrt{21}}{84}$ | $-\frac{5\sqrt{21}}{84}$ | $\frac{5\sqrt{21}}{84}$ | $\frac{5\sqrt{21}}{84}$ | | | | | | |
| $\mathbb{Q}_{3,2}^{(T_u,2)}$ | $\frac{5\sqrt{21}}{84}$ | $\frac{5\sqrt{21}}{84}$ | $-\frac{5\sqrt{21}}{84}$ | $-\frac{5\sqrt{21}}{84}$ | $-\frac{\sqrt{21}}{21}$ | $-\frac{\sqrt{21}}{21}$ | $\frac{\sqrt{21}}{21}$ | $\frac{\sqrt{21}}{21}$ | $\frac{\sqrt{21}}{84}$ | $-\frac{\sqrt{21}}{84}$ |
| | $\frac{\sqrt{21}}{84}$ | $-\frac{\sqrt{21}}{84}$ | $-\frac{5\sqrt{21}}{84}$ | $-\frac{5\sqrt{21}}{84}$ | $\frac{5\sqrt{21}}{84}$ | $\frac{5\sqrt{21}}{84}$ | $\frac{\sqrt{21}}{21}$ | $\frac{\sqrt{21}}{21}$ | $-\frac{\sqrt{21}}{21}$ | $-\frac{\sqrt{21}}{21}$ |
| | $-\frac{\sqrt{21}}{84}$ | $\frac{\sqrt{21}}{84}$ | $-\frac{\sqrt{21}}{84}$ | $\frac{\sqrt{21}}{84}$ | | | | | | |
| $\mathbb{Q}_{4,0}^{(T_g,1)}$ | $\frac{9\sqrt{829}}{23212}$ | $-\frac{9\sqrt{829}}{23212}$ | $\frac{9\sqrt{829}}{23212}$ | $-\frac{9\sqrt{829}}{23212}$ | $\frac{125\sqrt{829}}{23212}$ | $-\frac{125\sqrt{829}}{23212}$ | $\frac{125\sqrt{829}}{23212}$ | $-\frac{125\sqrt{829}}{23212}$ | $-\frac{64\sqrt{829}}{5803}$ | $\frac{64\sqrt{829}}{5803}$ |
| ,- | $\frac{64\sqrt{829}}{5803}$ | $-\frac{64\sqrt{829}}{5803}$ | $\frac{9\sqrt{829}}{23212}$ | $-\frac{9\sqrt{829}}{23212}$ | $\frac{9\sqrt{829}}{23212}$ | $-\frac{9\sqrt{829}}{23212}$ | $\frac{125\sqrt{829}}{23212}$ | $-\frac{125\sqrt{829}}{23212}$ | $\frac{125\sqrt{829}}{23212}$ | $-\frac{125\sqrt{829}}{23212}$ |
| | $-\frac{64\sqrt{829}}{5803}$ | $\frac{64\sqrt{829}}{5803}$ | $\frac{64\sqrt{829}}{5803}$ | $-\frac{64\sqrt{829}}{5803}$ | | | | | | |
| $\mathbb{Q}_{4,1}^{(T_g,1)}$ | $-\frac{64\sqrt{829}}{5803}$ | $\frac{64\sqrt{829}}{5803}$ | $\frac{64\sqrt{829}}{5803}$ | $-\frac{64\sqrt{829}}{5803}$ | $\frac{9\sqrt{829}}{23212}$ | $-\frac{9\sqrt{829}}{23212}$ | $-\frac{9\sqrt{829}}{23212}$ | $\frac{9\sqrt{829}}{23212}$ | $\frac{125\sqrt{829}}{23212}$ | $\frac{125\sqrt{829}}{23212}$ |
| -,+ | $-\frac{125\sqrt{829}}{23212}$ | $-\frac{125\sqrt{829}}{23212}$ | $-\frac{64\sqrt{829}}{5803}$ | $\frac{64\sqrt{829}}{5803}$ | $\frac{64\sqrt{829}}{5803}$ | $-\frac{64\sqrt{829}}{5803}$ | $\frac{9\sqrt{829}}{23212}$ | $-\frac{9\sqrt{829}}{23212}$ | $-\frac{9\sqrt{829}}{23212}$ | $\frac{9\sqrt{829}}{23212}$ |
| | $\frac{125\sqrt{829}}{23212}$ | $\frac{125\sqrt{829}}{23212}$ | $-\frac{125\sqrt{829}}{23212}$ | $-\frac{125\sqrt{829}}{23212}$ | 3300 | 2000 | 20212 | 23212 | 20212 | 20212 |
| $\mathbb{Q}_{4,2}^{(T_g,1)}$ | $\frac{125\sqrt{829}}{23212}$ | $\frac{125\sqrt{829}}{23212}$ | $-\frac{125\sqrt{829}}{23212}$ | $-\frac{125\sqrt{829}}{23212}$ | $-\frac{64\sqrt{829}}{5803}$ | $-\frac{64\sqrt{829}}{5803}$ | $\frac{64\sqrt{829}}{5803}$ | $\frac{64\sqrt{829}}{5803}$ | $\frac{9\sqrt{829}}{23212}$ | $-\frac{9\sqrt{829}}{23212}$ |
| -,- | $\frac{9\sqrt{829}}{23212}$ | $-\frac{9\sqrt{829}}{23212}$ | $\frac{125\sqrt{829}}{23212}$ | $\frac{125\sqrt{829}}{23212}$ | $-\frac{125\sqrt{829}}{23212}$ | $-\frac{125\sqrt{829}}{23212}$ | $-\frac{64\sqrt{829}}{5803}$ | $-\frac{64\sqrt{829}}{5803}$ | $\frac{64\sqrt{829}}{5803}$ | $\frac{64\sqrt{829}}{5803}$ |
| | $\frac{9\sqrt{829}}{23212}$ | $-\frac{9\sqrt{829}}{23212}$ | $\frac{9\sqrt{829}}{23212}$ | $-\frac{9\sqrt{829}}{23212}$ | | | | | **** | **** |
| $\mathbb{Q}_{4,0}^{(T_g,2)}$ | $\frac{39\sqrt{829}}{3316}$ | $-\frac{39\sqrt{829}}{3316}$ | $\frac{39\sqrt{829}}{3316}$ | $-\frac{39\sqrt{829}}{3316}$ | $-\frac{11\sqrt{829}}{3316}$ | $\frac{11\sqrt{829}}{3316}$ | $-\frac{11\sqrt{829}}{3316}$ | $\frac{11\sqrt{829}}{3316}$ | $-\frac{\sqrt{829}}{829}$ | $\frac{\sqrt{829}}{829}$ |
| - 4,0 | 3310 | 3310 | 3310 | 3310 | 3310 | 3310 | 3310 | 3310 | 049 | 049 |

Table 16

| symbol | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|-----------------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|
| | $\frac{\sqrt{829}}{829}$ | $-\frac{\sqrt{829}}{829}$ | $\frac{39\sqrt{829}}{3316}$ | $-\frac{39\sqrt{829}}{3316}$ | $\frac{39\sqrt{829}}{3316}$ | $-\frac{39\sqrt{829}}{3316}$ | $-\frac{11\sqrt{829}}{3316}$ | $\frac{11\sqrt{829}}{3316}$ | $-\frac{11\sqrt{829}}{3316}$ | $\frac{11\sqrt{829}}{3316}$ |
| | $-\frac{\sqrt{829}}{829}$ | $\frac{\sqrt{829}}{829}$ | $\frac{\sqrt{829}}{829}$ | $-\frac{\sqrt{829}}{829}$ | | | | | | |
| $\mathbb{Q}_{4,1}^{(T_g,2)}$ | $-\frac{\sqrt{829}}{829}$ | $\frac{\sqrt{829}}{829}$ | $\frac{\sqrt{829}}{829}$ | $-\frac{\sqrt{829}}{829}$ | $\frac{39\sqrt{829}}{3316}$ | $-\frac{39\sqrt{829}}{3316}$ | $-\frac{39\sqrt{829}}{3316}$ | $\frac{39\sqrt{829}}{3316}$ | $-\frac{11\sqrt{829}}{3316}$ | $-\frac{11\sqrt{829}}{3316}$ |
| | $\frac{11\sqrt{829}}{3316}$ | $\frac{11\sqrt{829}}{3316}$ | $-\frac{\sqrt{829}}{829}$ | $\frac{\sqrt{829}}{829}$ | $\frac{\sqrt{829}}{829}$ | $-\frac{\sqrt{829}}{829}$ | $\frac{39\sqrt{829}}{3316}$ | $-\frac{39\sqrt{829}}{3316}$ | $-\frac{39\sqrt{829}}{3316}$ | $\frac{39\sqrt{829}}{3316}$ |
| | $-\frac{11\sqrt{829}}{3316}$ | $-\frac{11\sqrt{829}}{3316}$ | $\frac{11\sqrt{829}}{3316}$ | $\frac{11\sqrt{829}}{3316}$ | | | | | | |
| $\mathbb{Q}_{4,2}^{(T_g,2)}$ | $-\frac{11\sqrt{829}}{3316}$ | $-\frac{11\sqrt{829}}{3316}$ | $\frac{11\sqrt{829}}{3316}$ | $\frac{11\sqrt{829}}{3316}$ | $-\frac{\sqrt{829}}{829}$ | $-\frac{\sqrt{829}}{829}$ | $\frac{\sqrt{829}}{829}$ | $\frac{\sqrt{829}}{829}$ | $\frac{39\sqrt{829}}{3316}$ | $-\frac{39\sqrt{829}}{3316}$ |
| | $\frac{39\sqrt{829}}{3316}$ | $-\frac{39\sqrt{829}}{3316}$ | $-\frac{11\sqrt{829}}{3316}$ | $-\frac{11\sqrt{829}}{3316}$ | $\frac{11\sqrt{829}}{3316}$ | $\frac{11\sqrt{829}}{3316}$ | $-\frac{\sqrt{829}}{829}$ | $-\frac{\sqrt{829}}{829}$ | $\frac{\sqrt{829}}{829}$ | $\frac{\sqrt{829}}{829}$ |
| | $\frac{39\sqrt{829}}{3316}$ | $-\frac{39\sqrt{829}}{3316}$ | $\frac{39\sqrt{829}}{3316}$ | $-\frac{39\sqrt{829}}{3316}$ | | | | | | |
| $\mathbb{Q}_{5,0}^{(E_{u})}$ | $\frac{5}{28}$ | $\frac{5}{28}$ | $\frac{5}{28}$ | $\frac{5}{28}$ | $-\frac{2}{7}$ | $-\frac{2}{7}$ | $-\frac{2}{7}$ | $-\frac{2}{7}$ | $\frac{3}{28}$ | $\frac{3}{28}$ |
| | $\frac{3}{28}$ | $\frac{3}{28}$ | $-\frac{5}{28}$ | $-\frac{5}{28}$ | $-\frac{5}{28}$ | $-\frac{5}{28}$ | $\frac{2}{7}$ | $\frac{2}{7}$ | $\frac{2}{7}$ | $\frac{2}{7}$ |
| | $-\frac{3}{28}$ | $-\frac{3}{28}$ | $-\frac{3}{28}$ | $-\frac{3}{28}$ | | | | | | |
| $\mathbb{Q}_{5,1}^{(E_u)}$ | $\frac{11\sqrt{3}}{84}$ | $\frac{11\sqrt{3}}{84}$ | $\frac{11\sqrt{3}}{84}$ | $\frac{11\sqrt{3}}{84}$ | $\frac{\sqrt{3}}{42}$ | $\frac{\sqrt{3}}{42}$ | $\frac{\sqrt{3}}{42}$ | $\frac{\sqrt{3}}{42}$ | $-\frac{13\sqrt{3}}{84}$ | $-\frac{13\sqrt{3}}{84}$ |
| | $-\frac{13\sqrt{3}}{84}$ | $-\frac{13\sqrt{3}}{84}$ | $-\frac{11\sqrt{3}}{84}$ | $-\frac{11\sqrt{3}}{84}$ | $-\frac{11\sqrt{3}}{84}$ | $-\frac{11\sqrt{3}}{84}$ | $-\frac{\sqrt{3}}{42}$ | $-\frac{\sqrt{3}}{42}$ | $-\frac{\sqrt{3}}{42}$ | $-\frac{\sqrt{3}}{42}$ |
| | $\frac{13\sqrt{3}}{84}$ | $\frac{13\sqrt{3}}{84}$ | $\frac{13\sqrt{3}}{84}$ | $\frac{13\sqrt{3}}{84}$ | | | | | | |