SAMB for "SnTe"

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- Group: No. 31 C_{2v}^{7} $Pmn2_1$ [orthorhombic]
- Associated point group: No. 7 C_{2v} $mm2$ [orthorhombic]

- Generation condition
  - model type: `tight_binding`
  - time-reversal type: `electric`
  - irrep: `[A1]`
  - `spinful`

- Unit cell:
  $a = 4.559,\ b = 6.0,\ c = 4.57,\ \alpha = 90.0,\ \beta = 90.0,\ \gamma = 90.0$
- Lattice vectors:
  $\boldsymbol{a}_1 = \begin{pmatrix} 4.559 & 0 & 0 \end{pmatrix}$
  $\boldsymbol{a}_2 = \begin{pmatrix} 0 & 6.0 & 0 \end{pmatrix}$
  $\boldsymbol{a}_3 = \begin{pmatrix} 0 & 0 & 4.57 \end{pmatrix}$

Table 1: High-symmetry line: Γ-X.

	symbol	position	symbol	position
	Γ	$\begin{pmatrix} 0 & 0 & 0 \end{pmatrix}$	X	$\begin{pmatrix} \frac{1}{2} & 0 & 0 \end{pmatrix}$

- Kets: dimension = 24

Table 2: Hilbert space for full matrix.

	No.	ket	No.	ket	No.	ket	No.	ket	No.	ket
	1	$(p_x,\uparrow)@\mathrm{Sn}_1$	2	$(p_x,\downarrow)@\mathrm{Sn}_1$	3	$(p_y,\uparrow)@\mathrm{Sn}_1$	4	$(p_y,\downarrow)@\mathrm{Sn}_1$	5	$(p_z,\uparrow)@\mathrm{Sn}_1$
	6	$(p_z,\downarrow)@\mathrm{Sn}_1$	7	$(p_x,\uparrow)@\mathrm{Sn}_2$	8	$(p_x,\downarrow)@\mathrm{Sn}_2$	9	$(p_y,\uparrow)@\mathrm{Sn}_2$	10	$(p_y,\downarrow)@\mathrm{Sn}_2$
	11	$(p_z,\uparrow)@\mathrm{Sn}_2$	12	$(p_z,\downarrow)@\mathrm{Sn}_2$	13	$(p_x,\uparrow)@\mathrm{Te}_1$	14	$(p_x,\downarrow)@\mathrm{Te}_1$	15	$(p_y,\uparrow)@\mathrm{Te}_1$
	16	$(p_y,\downarrow)@\mathrm{Te}_1$	17	$(p_z,\uparrow)@\mathrm{Te}_1$	18	$(p_z,\downarrow)@\mathrm{Te}_1$	19	$(p_x,\uparrow)@\mathrm{Te}_2$	20	$(p_x,\downarrow)@\mathrm{Te}_2$
	21	$(p_y,\uparrow)@\mathrm{Te}_2$	22	$(p_y,\downarrow)@\mathrm{Te}_2$	23	$(p_z,\uparrow)@\mathrm{Te}_2$	24	$(p_z,\downarrow)@\mathrm{Te}_2$		

- Sites in (primitive) unit cell:

Table 3: Site-clusters.

	site	position	mapping
S_1	Sn_1	$\begin{pmatrix}\frac{1}{2} & \frac{3}{5} & \frac{3}{5}\end{pmatrix}$	[1,4]
	Sn_2	$\begin{pmatrix}0 & \frac{2}{5} & \frac{1}{10}\end{pmatrix}$	[2,3]
S_2	Te_1	$\begin{pmatrix}\frac{1}{2} & \frac{7}{20} & \frac{2}{5}\end{pmatrix}$	[1,4]
	Te_2	$\begin{pmatrix}0 & \frac{13}{20} & \frac{9}{10}\end{pmatrix}$	[2,3]

- Bonds in (primitive) unit cell:

Table 4: Bond-clusters.

	bond	tail	head	n	#	$\boldsymbol{b}@\boldsymbol{c}$	mapping
B_1	b_1	Te_1	Sn_1	1	1	$\begin{pmatrix}0 & -\frac{1}{4} & -\frac{1}{5}\end{pmatrix}@\begin{pmatrix}\frac{1}{2} & \frac{19}{40} & \frac{1}{2}\end{pmatrix}$	[1,4]
	b_2	Te_2	Sn_2	1	1	$\begin{pmatrix}0 & \frac{1}{4} & -\frac{1}{5}\end{pmatrix}@\begin{pmatrix}0 & \frac{21}{40} & 0\end{pmatrix}$	[2,3]
B_2	b_3	Te_2	Sn_1	2	1	$\begin{pmatrix}-\frac{1}{2} & \frac{1}{20} & \frac{3}{10}\end{pmatrix}@\begin{pmatrix}\frac{1}{4} & \frac{5}{8} & \frac{3}{4}\end{pmatrix}$	[1]
	b_4	Te_1	Sn_2	2	1	$\begin{pmatrix}\frac{1}{2} & -\frac{1}{20} & \frac{3}{10}\end{pmatrix}@\begin{pmatrix}\frac{1}{4} & \frac{3}{8} & \frac{1}{4}\end{pmatrix}$	[2]
	b_5	Te_1	Sn_2	2	1	$\begin{pmatrix}-\frac{1}{2} & -\frac{1}{20} & \frac{3}{10}\end{pmatrix}@\begin{pmatrix}\frac{3}{4} & \frac{3}{8} & \frac{1}{4}\end{pmatrix}$	[3]

continued ...

Table 4

	bond	tail	head	n	#	$\boldsymbol{b}$@$\boldsymbol{c}$	mapping
	b_6	Te_2	Sn_1	2	1	$\left(\frac{1}{2} \quad \frac{1}{20} \quad \frac{3}{10}\right)$ @ $\left(\frac{3}{4} \quad \frac{5}{8} \quad \frac{3}{4}\right)$	[4]
B_3	b_7	Sn_2	Sn_1	1	1	$\left(-\frac{1}{2} \quad -\frac{1}{5} \quad -\frac{1}{2}\right)$ @ $\left(\frac{1}{4} \quad \frac{1}{2} \quad \frac{7}{20}\right)$	[1]
	b_8	Sn_2	Sn_1	1	1	$\left(-\frac{1}{2} \quad -\frac{1}{5} \quad \frac{1}{2}\right)$ @ $\left(\frac{1}{4} \quad \frac{1}{2} \quad \frac{17}{20}\right)$	[-2]
	b_9	Sn_2	Sn_1	1	1	$\left(\frac{1}{2} \quad -\frac{1}{5} \quad \frac{1}{2}\right)$ @ $\left(\frac{3}{4} \quad \frac{1}{2} \quad \frac{17}{20}\right)$	[-3]
	b_{10}	Sn_2	Sn_1	1	1	$\left(\frac{1}{2} \quad -\frac{1}{5} \quad -\frac{1}{2}\right)$ @ $\left(\frac{3}{4} \quad \frac{1}{2} \quad \frac{7}{20}\right)$	[4]
B_4	b_{11}	Te_2	Te_1	1	1	$\left(-\frac{1}{2} \quad \frac{3}{10} \quad -\frac{1}{2}\right)$ @ $\left(\frac{1}{4} \quad \frac{1}{2} \quad \frac{3}{20}\right)$	[1]
	b_{12}	Te_2	Te_1	1	1	$\left(-\frac{1}{2} \quad \frac{3}{10} \quad \frac{1}{2}\right)$ @ $\left(\frac{1}{4} \quad \frac{1}{2} \quad \frac{13}{20}\right)$	[-2]
	b_{13}	Te_2	Te_1	1	1	$\left(\frac{1}{2} \quad \frac{3}{10} \quad \frac{1}{2}\right)$ @ $\left(\frac{3}{4} \quad \frac{1}{2} \quad \frac{13}{20}\right)$	[-3]
	b_{14}	Te_2	Te_1	1	1	$\left(\frac{1}{2} \quad \frac{3}{10} \quad -\frac{1}{2}\right)$ @ $\left(\frac{3}{4} \quad \frac{1}{2} \quad \frac{3}{20}\right)$	[4]

- SAMB:

No. 1 $\hat{\mathbb{Q}}_0^{(A_1)}$ $[\mathrm{M}_1, \mathrm{S}_1]$

$\hat{\mathbb{Z}}_1 = \mathbb{X}_1[\mathbb{Q}_0^{(a,A_1)}] \otimes \mathbb{Y}_1[\mathbb{Q}_0^{(s,A_1)}]$

$\hat{\mathbb{Z}}_1(\boldsymbol{k}) = \mathbb{X}_1[\mathbb{Q}_0^{(a,A_1)}] \otimes \mathbb{U}_1[\mathbb{Q}_0^{(s,A_1)}]$

No. 2 $\hat{\mathbb{Q}}_2^{(A_1,1)}$ $[\mathrm{M}_1, \mathrm{S}_1]$

$\hat{\mathbb{Z}}_2 = \mathbb{X}_2[\mathbb{Q}_2^{(a,A_1,1)}] \otimes \mathbb{Y}_1[\mathbb{Q}_0^{(s,A_1)}]$

$\hat{\mathbb{Z}}_2(\boldsymbol{k}) = \mathbb{X}_2[\mathbb{Q}_2^{(a,A_1,1)}] \otimes \mathbb{U}_1[\mathbb{Q}_0^{(s,A_1)}]$

No. 3 $\hat{\mathbb{Q}}_2^{(A_1,2)}$ $[\mathrm{M}_1, \mathrm{S}_1]$

$\hat{\mathbb{Z}}_3 = \mathbb{X}_3[\mathbb{Q}_2^{(a,A_1,2)}] \otimes \mathbb{Y}_1[\mathbb{Q}_0^{(s,A_1)}]$

$\hat{\mathbb{Z}}_3(\boldsymbol{k}) = \mathbb{X}_3[\mathbb{Q}_2^{(a,A_1,2)}] \otimes \mathbb{U}_1[\mathbb{Q}_0^{(s,A_1)}]$

No. 4 $\hat{\mathbb{Q}}_1^{(A_1)}$ $[\mathrm{M}_1, \mathrm{S}_1]$

$\hat{\mathbb{Z}}_4 = \mathbb{X}_9[\mathbb{Q}_2^{(a,B_2)}] \otimes \mathbb{Y}_2[\mathbb{Q}_1^{(s,B_2)}]$

$\hat{\mathbb{Z}}_4(\boldsymbol{k}) = \mathbb{X}_9[\mathbb{Q}_2^{(a,B_2)}] \otimes \mathbb{U}_2[\mathbb{Q}_1^{(s,B_2)}]$

No. 5 $\hat{\mathbb{Q}}_0^{(A_1)}(1,1)$ $[\mathrm{M}_1, \mathrm{S}_1]$

$\hat{\mathbb{Z}}_5 = \mathbb{X}_4[\mathbb{Q}_0^{(a,A_1)}(1,1)] \otimes \mathbb{Y}_1[\mathbb{Q}_0^{(s,A_1)}]$

$\hat{\mathbb{Z}}_5(\boldsymbol{k}) = \mathbb{X}_4[\mathbb{Q}_0^{(a,A_1)}(1,1)] \otimes \mathbb{U}_1[\mathbb{Q}_0^{(s,A_1)}]$

No. 6 $\hat{\mathbb{Q}}_2^{(A_1,1)}(1,-1)$ $[\mathrm{M}_1, \mathrm{S}_1]$

$\hat{\mathbb{Z}}_6 = \mathbb{X}_5[\mathbb{Q}_2^{(a,A_1,1)}(1,-1)] \otimes \mathbb{Y}_1[\mathbb{Q}_0^{(s,A_1)}]$

$\hat{\mathbb{Z}}_6(\boldsymbol{k}) = \mathbb{X}_5[\mathbb{Q}_2^{(a,A_1,1)}(1,-1)] \otimes \mathbb{U}_1[\mathbb{Q}_0^{(s,A_1)}]$

No. 7 $\hat{\mathbb{Q}}_2^{(A_1,2)}(1,-1)$ $[\mathrm{M}_1, \mathrm{S}_1]$

$\hat{\mathbb{Z}}_7 = \mathbb{X}_6[\mathbb{Q}_2^{(a,A_1,2)}(1,-1)] \otimes \mathbb{Y}_1[\mathbb{Q}_0^{(s,A_1)}]$

$\hat{\mathbb{Z}}_7(\boldsymbol{k}) = \mathbb{X}_6[\mathbb{Q}_2^{(a,A_1,2)}(1,-1)] \otimes \mathbb{U}_1[\mathbb{Q}_0^{(s,A_1)}]$

No. 8 $\hat{\mathbb{Q}}_1^{(A_1)}(1,-1)$ $[\mathrm{M}_1, \mathrm{S}_1]$

$\hat{\mathbb{Z}}_8 = \mathbb{X}_{14}[\mathbb{Q}_2^{(a,B_2)}(1,-1)] \otimes \mathbb{Y}_2[\mathbb{Q}_1^{(s,B_2)}]$

$\hat{\mathbb{Z}}_8(\boldsymbol{k}) = \mathbb{X}_{14}[\mathbb{Q}_2^{(a,B_2)}(1,-1)] \otimes \mathbb{U}_2[\mathbb{Q}_1^{(s,B_2)}]$

No. 9 $\hat{\mathbb{Q}}_1^{(A_1)}(1,0)$ $[\mathrm{M}_1, \mathrm{S}_1]$

$\hat{\mathbb{Z}}_9 = \mathbb{X}_{15}[\mathbb{G}_1^{(a,B_2)}(1,0)] \otimes \mathbb{Y}_2[\mathbb{Q}_1^{(s,B_2)}]$

$\hat{\mathbb{Z}}_9(\boldsymbol{k}) = \mathbb{X}_{15}[\mathbb{G}_1^{(a,B_2)}(1,0)] \otimes \mathbb{U}_2[\mathbb{Q}_1^{(s,B_2)}]$

No. 10 $\hat{\mathbb{Q}}_0^{(A_1)}$ $[\mathrm{M}_1, \mathrm{S}_2]$

$\hat{\mathbb{Z}}_{10} = \mathbb{X}_1[\mathbb{Q}_0^{(a,A_1)}] \otimes \mathbb{Y}_3[\mathbb{Q}_0^{(s,A_1)}]$

$\hat{\mathbb{Z}}_{10}(\boldsymbol{k}) = \mathbb{X}_1[\mathbb{Q}_0^{(a,A_1)}] \otimes \mathbb{U}_3[\mathbb{Q}_0^{(s,A_1)}]$

No. 11 $\hat{\mathbb{Q}}_2^{(A_1,1)}$ $[\mathrm{M}_1, \mathrm{S}_2]$

$\hat{\mathbb{Z}}_{11} = \mathbb{X}_2[\mathbb{Q}_2^{(a,A_1,1)}] \otimes \mathbb{Y}_3[\mathbb{Q}_0^{(s,A_1)}]$

$\hat{\mathbb{Z}}_{11}(\boldsymbol{k}) = \mathbb{X}_2[\mathbb{Q}_2^{(a,A_1,1)}] \otimes \mathbb{U}_3[\mathbb{Q}_0^{(s,A_1)}]$

No. 12 $\hat{\mathbb{Q}}_2^{(A_1,2)}$ $[\mathrm{M}_1, \mathrm{S}_2]$

$\hat{\mathbb{Z}}_{12} = \mathbb{X}_3[\mathbb{Q}_2^{(a,A_1,2)}] \otimes \mathbb{Y}_3[\mathbb{Q}_0^{(s,A_1)}]$

$\hat{\mathbb{Z}}_{12}(\boldsymbol{k}) = \mathbb{X}_3[\mathbb{Q}_2^{(a,A_1,2)}] \otimes \mathbb{U}_3[\mathbb{Q}_0^{(s,A_1)}]$

No. 13 $\hat{\mathbb{Q}}_1^{(A_1)}$ $[\mathrm{M}_1, \mathrm{S}_2]$

$\hat{\mathbb{Z}}_{13} = \mathbb{X}_9[\mathbb{Q}_2^{(a,B_2)}] \otimes \mathbb{Y}_4[\mathbb{Q}_1^{(s,B_2)}]$

$\hat{\mathbb{Z}}_{13}(\boldsymbol{k}) = \mathbb{X}_9[\mathbb{Q}_2^{(a,B_2)}] \otimes \mathbb{U}_4[\mathbb{Q}_1^{(s,B_2)}]$

No. 14 $\hat{\mathbb{Q}}_0^{(A_1)}(1,1)$ $[\mathrm{M}_1, \mathrm{S}_2]$

$\hat{\mathbb{Z}}_{14} = \mathbb{X}_4[\mathbb{Q}_0^{(a,A_1)}(1,1)] \otimes \mathbb{Y}_3[\mathbb{Q}_0^{(s,A_1)}]$

$\hat{\mathbb{Z}}_{14}(\boldsymbol{k}) = \mathbb{X}_4[\mathbb{Q}_0^{(a,A_1)}(1,1)] \otimes \mathbb{U}_3[\mathbb{Q}_0^{(s,A_1)}]$

No. 15 $\hat{\mathbb{Q}}_2^{(A_1,1)}(1,-1)$ $[\mathrm{M}_1, \mathrm{S}_2]$

$\hat{\mathbb{Z}}_{15} = \mathbb{X}_5[\mathbb{Q}_2^{(a,A_1,1)}(1,-1)] \otimes \mathbb{Y}_3[\mathbb{Q}_0^{(s,A_1)}]$

$\hat{\mathbb{Z}}_{15}(\boldsymbol{k}) = \mathbb{X}_5[\mathbb{Q}_2^{(a,A_1,1)}(1,-1)] \otimes \mathbb{U}_3[\mathbb{Q}_0^{(s,A_1)}]$

No. 16 $\hat{\mathbb{Q}}_2^{(A_1,2)}(1,-1)$ $[\mathrm{M}_1,\mathrm{S}_2]$

$$\hat{\mathbb{Z}}_{16} = \mathbb{X}_6[\mathbb{Q}_2^{(a,A_1,2)}(1,-1)] \otimes \mathbb{Y}_3[\mathbb{Q}_0^{(s,A_1)}]$$

$$\hat{\mathbb{Z}}_{16}(\boldsymbol{k}) = \mathbb{X}_6[\mathbb{Q}_2^{(a,A_1,2)}(1,-1)] \otimes \mathbb{U}_3[\mathbb{Q}_0^{(s,A_1)}]$$

No. 17 $\hat{\mathbb{Q}}_1^{(A_1)}(1,-1)$ $[\mathrm{M}_1,\mathrm{S}_2]$

$$\hat{\mathbb{Z}}_{17} = \mathbb{X}_{14}[\mathbb{Q}_2^{(a,B_2)}(1,-1)] \otimes \mathbb{Y}_4[\mathbb{Q}_1^{(s,B_2)}]$$

$$\hat{\mathbb{Z}}_{17}(\boldsymbol{k}) = \mathbb{X}_{14}[\mathbb{Q}_2^{(a,B_2)}(1,-1)] \otimes \mathbb{U}_4[\mathbb{Q}_1^{(s,B_2)}]$$

No. 18 $\hat{\mathbb{Q}}_1^{(A_1)}(1,0)$ $[\mathrm{M}_1,\mathrm{S}_2]$

$$\hat{\mathbb{Z}}_{18} = \mathbb{X}_{15}[\mathbb{G}_1^{(a,B_2)}(1,0)] \otimes \mathbb{Y}_4[\mathbb{Q}_1^{(s,B_2)}]$$

$$\hat{\mathbb{Z}}_{18}(\boldsymbol{k}) = \mathbb{X}_{15}[\mathbb{G}_1^{(a,B_2)}(1,0)] \otimes \mathbb{U}_4[\mathbb{Q}_1^{(s,B_2)}]$$

No. 19 $\hat{\mathbb{Q}}_0^{(A_1)}$ $[\mathrm{M}_1,\mathrm{B}_1]$

$$\hat{\mathbb{Z}}_{19} = \mathbb{X}_1[\mathbb{Q}_0^{(a,A_1)}] \otimes \mathbb{Y}_5[\mathbb{Q}_0^{(b,A_1)}]$$

$$\begin{aligned}\hat{\mathbb{Z}}_{19}(\boldsymbol{k}) = {} & \frac{\mathbb{X}_1[\mathbb{Q}_0^{(a,A_1)}] \otimes \mathbb{U}_5[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_1[\mathbb{Q}_0^{(k,A_1)}]}{2} + \frac{\mathbb{X}_1[\mathbb{Q}_0^{(a,A_1)}] \otimes \mathbb{U}_6[\mathbb{Q}_1^{(u,B_2)}] \otimes \mathbb{F}_2[\mathbb{Q}_1^{(k,B_2)}]}{2} \\ & - \frac{\mathbb{X}_1[\mathbb{Q}_0^{(a,A_1)}] \otimes \mathbb{U}_7[\mathbb{T}_0^{(u,A_1)}] \otimes \mathbb{F}_3[\mathbb{T}_0^{(k,A_1)}]}{2} - \frac{\mathbb{X}_1[\mathbb{Q}_0^{(a,A_1)}] \otimes \mathbb{U}_8[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_4[\mathbb{T}_1^{(k,B_2)}]}{2}\end{aligned}$$

No. 20 $\hat{\mathbb{Q}}_2^{(A_1,1)}$ $[\mathrm{M}_1,\mathrm{B}_1]$

$$\hat{\mathbb{Z}}_{20} = \mathbb{X}_2[\mathbb{Q}_2^{(a,A_1,1)}] \otimes \mathbb{Y}_5[\mathbb{Q}_0^{(b,A_1)}]$$

$$\begin{aligned}\hat{\mathbb{Z}}_{20}(\boldsymbol{k}) = {} & \frac{\mathbb{X}_2[\mathbb{Q}_2^{(a,A_1,1)}] \otimes \mathbb{U}_5[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_1[\mathbb{Q}_0^{(k,A_1)}]}{2} + \frac{\mathbb{X}_2[\mathbb{Q}_2^{(a,A_1,1)}] \otimes \mathbb{U}_6[\mathbb{Q}_1^{(u,B_2)}] \otimes \mathbb{F}_2[\mathbb{Q}_1^{(k,B_2)}]}{2} \\ & - \frac{\mathbb{X}_2[\mathbb{Q}_2^{(a,A_1,1)}] \otimes \mathbb{U}_7[\mathbb{T}_0^{(u,A_1)}] \otimes \mathbb{F}_3[\mathbb{T}_0^{(k,A_1)}]}{2} - \frac{\mathbb{X}_2[\mathbb{Q}_2^{(a,A_1,1)}] \otimes \mathbb{U}_8[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_4[\mathbb{T}_1^{(k,B_2)}]}{2}\end{aligned}$$

No. 21 $\hat{\mathbb{Q}}_2^{(A_1,2)}$ $[\mathrm{M}_1, \mathrm{B}_1]$

$$\hat{\mathbb{Z}}_{21} = \mathbb{X}_3[\mathbb{Q}_2^{(a,A_1,2)}] \otimes \mathbb{Y}_5[\mathbb{Q}_0^{(b,A_1)}]$$

$$\hat{\mathbb{Z}}_{21}(\boldsymbol{k}) = \frac{\mathbb{X}_3[\mathbb{Q}_2^{(a,A_1,2)}] \otimes \mathbb{U}_5[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_1[\mathbb{Q}_0^{(k,A_1)}]}{2} + \frac{\mathbb{X}_3[\mathbb{Q}_2^{(a,A_1,2)}] \otimes \mathbb{U}_6[\mathbb{Q}_1^{(u,B_2)}] \otimes \mathbb{F}_2[\mathbb{Q}_1^{(k,B_2)}]}{2} - \frac{\mathbb{X}_3[\mathbb{Q}_2^{(a,A_1,2)}] \otimes \mathbb{U}_7[\mathbb{T}_0^{(u,A_1)}] \otimes \mathbb{F}_3[\mathbb{T}_0^{(k,A_1)}]}{2} - \frac{\mathbb{X}_3[\mathbb{Q}_2^{(a,A_1,2)}] \otimes \mathbb{U}_8[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_4[\mathbb{T}_1^{(k,B_2)}]}{2}$$

No. 22 $\hat{\mathbb{Q}}_1^{(A_1)}$ $[\mathrm{M}_1, \mathrm{B}_1]$

$$\hat{\mathbb{Z}}_{22} = \mathbb{X}_9[\mathbb{Q}_2^{(a,B_2)}] \otimes \mathbb{Y}_6[\mathbb{Q}_1^{(b,B_2)}]$$

$$\hat{\mathbb{Z}}_{22}(\boldsymbol{k}) = \frac{\mathbb{X}_9[\mathbb{Q}_2^{(a,B_2)}] \otimes \mathbb{U}_5[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_2[\mathbb{Q}_1^{(k,B_2)}]}{2} + \frac{\mathbb{X}_9[\mathbb{Q}_2^{(a,B_2)}] \otimes \mathbb{U}_6[\mathbb{Q}_1^{(u,B_2)}] \otimes \mathbb{F}_1[\mathbb{Q}_0^{(k,A_1)}]}{2} - \frac{\mathbb{X}_9[\mathbb{Q}_2^{(a,B_2)}] \otimes \mathbb{U}_7[\mathbb{T}_0^{(u,A_1)}] \otimes \mathbb{F}_4[\mathbb{T}_1^{(k,B_2)}]}{2} - \frac{\mathbb{X}_9[\mathbb{Q}_2^{(a,B_2)}] \otimes \mathbb{U}_8[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_3[\mathbb{T}_0^{(k,A_1)}]}{2}$$

No. 23 $\hat{\mathbb{Q}}_0^{(A_1)}(1,1)$ $[\mathrm{M}_1, \mathrm{B}_1]$

$$\hat{\mathbb{Z}}_{23} = \mathbb{X}_4[\mathbb{Q}_0^{(a,A_1)}(1,1)] \otimes \mathbb{Y}_5[\mathbb{Q}_0^{(b,A_1)}]$$

$$\hat{\mathbb{Z}}_{23}(\boldsymbol{k}) = \frac{\mathbb{X}_4[\mathbb{Q}_0^{(a,A_1)}(1,1)] \otimes \mathbb{U}_5[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_1[\mathbb{Q}_0^{(k,A_1)}]}{2} + \frac{\mathbb{X}_4[\mathbb{Q}_0^{(a,A_1)}(1,1)] \otimes \mathbb{U}_6[\mathbb{Q}_1^{(u,B_2)}] \otimes \mathbb{F}_2[\mathbb{Q}_1^{(k,B_2)}]}{2} - \frac{\mathbb{X}_4[\mathbb{Q}_0^{(a,A_1)}(1,1)] \otimes \mathbb{U}_7[\mathbb{T}_0^{(u,A_1)}] \otimes \mathbb{F}_3[\mathbb{T}_0^{(k,A_1)}]}{2} - \frac{\mathbb{X}_4[\mathbb{Q}_0^{(a,A_1)}(1,1)] \otimes \mathbb{U}_8[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_4[\mathbb{T}_1^{(k,B_2)}]}{2}$$

No. 24 $\hat{\mathbb{Q}}_2^{(A_1,1)}(1,-1)$ $[\mathrm{M}_1, \mathrm{B}_1]$

$$\hat{\mathbb{Z}}_{24} = \mathbb{X}_5[\mathbb{Q}_2^{(a,A_1,1)}(1,-1)] \otimes \mathbb{Y}_5[\mathbb{Q}_0^{(b,A_1)}]$$

$$\hat{\mathbb{Z}}_{24}(\boldsymbol{k}) = \frac{\mathbb{X}_5[\mathbb{Q}_2^{(a,A_1,1)}(1,-1)] \otimes \mathbb{U}_5[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_1[\mathbb{Q}_0^{(k,A_1)}]}{2} + \frac{\mathbb{X}_5[\mathbb{Q}_2^{(a,A_1,1)}(1,-1)] \otimes \mathbb{U}_6[\mathbb{Q}_1^{(u,B_2)}] \otimes \mathbb{F}_2[\mathbb{Q}_1^{(k,B_2)}]}{2} - \frac{\mathbb{X}_5[\mathbb{Q}_2^{(a,A_1,1)}(1,-1)] \otimes \mathbb{U}_7[\mathbb{T}_0^{(u,A_1)}] \otimes \mathbb{F}_3[\mathbb{T}_0^{(k,A_1)}]}{2} - \frac{\mathbb{X}_5[\mathbb{Q}_2^{(a,A_1,1)}(1,-1)] \otimes \mathbb{U}_8[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_4[\mathbb{T}_1^{(k,B_2)}]}{2}$$

No. 25 $\hat{\mathbb{Q}}_2^{(A_1,2)}(1,-1)$ $[\mathrm{M}_1, \mathrm{B}_1]$

$$\hat{\mathbb{Z}}_{25} = \mathbb{X}_6[\mathbb{Q}_2^{(a,A_1,2)}(1,-1)] \otimes \mathbb{Y}_5[\mathbb{Q}_0^{(b,A_1)}]$$

$$\hat{\mathbb{Z}}_{25}(\boldsymbol{k}) = \frac{\mathbb{X}_6[\mathbb{Q}_2^{(a,A_1,2)}(1,-1)] \otimes \mathbb{U}_5[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_1[\mathbb{Q}_0^{(k,A_1)}]}{2} + \frac{\mathbb{X}_6[\mathbb{Q}_2^{(a,A_1,2)}(1,-1)] \otimes \mathbb{U}_6[\mathbb{Q}_1^{(u,B_2)}] \otimes \mathbb{F}_2[\mathbb{Q}_1^{(k,B_2)}]}{2}$$
$$- \frac{\mathbb{X}_6[\mathbb{Q}_2^{(a,A_1,2)}(1,-1)] \otimes \mathbb{U}_7[\mathbb{T}_0^{(u,A_1)}] \otimes \mathbb{F}_3[\mathbb{T}_0^{(k,A_1)}]}{2} - \frac{\mathbb{X}_6[\mathbb{Q}_2^{(a,A_1,2)}(1,-1)] \otimes \mathbb{U}_8[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_4[\mathbb{T}_1^{(k,B_2)}]}{2}$$

No. 26 $\hat{\mathbb{Q}}_1^{(A_1)}(1,-1)$ $[\mathrm{M}_1, \mathrm{B}_1]$

$$\hat{\mathbb{Z}}_{26} = \mathbb{X}_{14}[\mathbb{Q}_2^{(a,B_2)}(1,-1)] \otimes \mathbb{Y}_6[\mathbb{Q}_1^{(b,B_2)}]$$

$$\hat{\mathbb{Z}}_{26}(\boldsymbol{k}) = \frac{\mathbb{X}_{14}[\mathbb{Q}_2^{(a,B_2)}(1,-1)] \otimes \mathbb{U}_5[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_2[\mathbb{Q}_1^{(k,B_2)}]}{2} + \frac{\mathbb{X}_{14}[\mathbb{Q}_2^{(a,B_2)}(1,-1)] \otimes \mathbb{U}_6[\mathbb{Q}_1^{(u,B_2)}] \otimes \mathbb{F}_1[\mathbb{Q}_0^{(k,A_1)}]}{2}$$
$$- \frac{\mathbb{X}_{14}[\mathbb{Q}_2^{(a,B_2)}(1,-1)] \otimes \mathbb{U}_7[\mathbb{T}_0^{(u,A_1)}] \otimes \mathbb{F}_4[\mathbb{T}_1^{(k,B_2)}]}{2} - \frac{\mathbb{X}_{14}[\mathbb{Q}_2^{(a,B_2)}(1,-1)] \otimes \mathbb{U}_8[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_3[\mathbb{T}_0^{(k,A_1)}]}{2}$$

No. 27 $\hat{\mathbb{Q}}_1^{(A_1)}(1,0)$ $[\mathrm{M}_1, \mathrm{B}_1]$

$$\hat{\mathbb{Z}}_{27} = \mathbb{X}_{15}[\mathbb{G}_1^{(a,B_2)}(1,0)] \otimes \mathbb{Y}_6[\mathbb{Q}_1^{(b,B_2)}]$$

$$\hat{\mathbb{Z}}_{27}(\boldsymbol{k}) = \frac{\mathbb{X}_{15}[\mathbb{G}_1^{(a,B_2)}(1,0)] \otimes \mathbb{U}_5[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_2[\mathbb{Q}_1^{(k,B_2)}]}{2} + \frac{\mathbb{X}_{15}[\mathbb{G}_1^{(a,B_2)}(1,0)] \otimes \mathbb{U}_6[\mathbb{Q}_1^{(u,B_2)}] \otimes \mathbb{F}_1[\mathbb{Q}_0^{(k,A_1)}]}{2}$$
$$- \frac{\mathbb{X}_{15}[\mathbb{G}_1^{(a,B_2)}(1,0)] \otimes \mathbb{U}_7[\mathbb{T}_0^{(u,A_1)}] \otimes \mathbb{F}_4[\mathbb{T}_1^{(k,B_2)}]}{2} - \frac{\mathbb{X}_{15}[\mathbb{G}_1^{(a,B_2)}(1,0)] \otimes \mathbb{U}_8[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_3[\mathbb{T}_0^{(k,A_1)}]}{2}$$

No. 28 $\hat{\mathbb{Q}}_1^{(A_1)}$ $[\mathrm{M}_1, \mathrm{B}_1]$

$$\hat{\mathbb{Z}}_{28} = \mathbb{X}_{18}[\mathbb{M}_1^{(a,B_2)}] \otimes \mathbb{Y}_8[\mathbb{T}_1^{(b,B_2)}]$$

$$\hat{\mathbb{Z}}_{28}(\boldsymbol{k}) = \frac{\mathbb{X}_{18}[\mathbb{M}_1^{(a,B_2)}] \otimes \mathbb{U}_5[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_4[\mathbb{T}_1^{(k,B_2)}]}{2} + \frac{\mathbb{X}_{18}[\mathbb{M}_1^{(a,B_2)}] \otimes \mathbb{U}_6[\mathbb{Q}_1^{(u,B_2)}] \otimes \mathbb{F}_3[\mathbb{T}_0^{(k,A_1)}]}{2}$$
$$+ \frac{\mathbb{X}_{18}[\mathbb{M}_1^{(a,B_2)}] \otimes \mathbb{U}_7[\mathbb{T}_0^{(u,A_1)}] \otimes \mathbb{F}_2[\mathbb{Q}_1^{(k,B_2)}]}{2} + \frac{\mathbb{X}_{18}[\mathbb{M}_1^{(a,B_2)}] \otimes \mathbb{U}_8[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_1[\mathbb{Q}_0^{(k,A_1)}]}{2}$$

No. 29 $\hat{\mathbb{Q}}_1^{(A_1)}(1,1)$ $[\mathrm{M}_1, \mathrm{B}_1]$

$$\hat{\mathbb{Z}}_{29} = \mathbb{X}_{29}[\mathbb{M}_1^{(a,B_2)}(1,1)] \otimes \mathbb{Y}_8[\mathbb{T}_1^{(b,B_2)}]$$

$$\hat{\mathbb{Z}}_{29}(\boldsymbol{k}) = \frac{\mathbb{X}_{29}[\mathbb{M}_1^{(a,B_2)}(1,1)] \otimes \mathbb{U}_5[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_4[\mathbb{T}_1^{(k,B_2)}]}{2} + \frac{\mathbb{X}_{29}[\mathbb{M}_1^{(a,B_2)}(1,1)] \otimes \mathbb{U}_6[\mathbb{Q}_1^{(u,B_2)}] \otimes \mathbb{F}_3[\mathbb{T}_0^{(k,A_1)}]}{2}$$
$$+ \frac{\mathbb{X}_{29}[\mathbb{M}_1^{(a,B_2)}(1,1)] \otimes \mathbb{U}_7[\mathbb{T}_0^{(u,A_1)}] \otimes \mathbb{F}_2[\mathbb{Q}_1^{(k,B_2)}]}{2} + \frac{\mathbb{X}_{29}[\mathbb{M}_1^{(a,B_2)}(1,1)] \otimes \mathbb{U}_8[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_1[\mathbb{Q}_0^{(k,A_1)}]}{2}$$

No. 30 $\hat{\mathbb{Q}}_1^{(A_1)}(1,-1)$ $[\mathrm{M}_1, \mathrm{B}_1]$

$$\hat{\mathbb{Z}}_{30} = \mathbb{X}_{30}[\mathbb{M}_1^{(a,B_2)}(1,-1)] \otimes \mathbb{Y}_8[\mathbb{T}_1^{(b,B_2)}]$$

$$\hat{\mathbb{Z}}_{30}(\boldsymbol{k}) = \frac{\mathbb{X}_{30}[\mathbb{M}_1^{(a,B_2)}(1,-1)] \otimes \mathbb{U}_5[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_4[\mathbb{T}_1^{(k,B_2)}]}{2} + \frac{\mathbb{X}_{30}[\mathbb{M}_1^{(a,B_2)}(1,-1)] \otimes \mathbb{U}_6[\mathbb{Q}_1^{(u,B_2)}] \otimes \mathbb{F}_3[\mathbb{T}_0^{(k,A_1)}]}{2}$$
$$+ \frac{\mathbb{X}_{30}[\mathbb{M}_1^{(a,B_2)}(1,-1)] \otimes \mathbb{U}_7[\mathbb{T}_0^{(u,A_1)}] \otimes \mathbb{F}_2[\mathbb{Q}_1^{(k,B_2)}]}{2} + \frac{\mathbb{X}_{30}[\mathbb{M}_1^{(a,B_2)}(1,-1)] \otimes \mathbb{U}_8[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_1[\mathbb{Q}_0^{(k,A_1)}]}{2}$$

No. 31 $\hat{\mathbb{G}}_3^{(A_1)}(1,-1)$ $[\mathrm{M}_1, \mathrm{B}_1]$

$$\hat{\mathbb{Z}}_{31} = \mathbb{X}_{34}[\mathbb{M}_3^{(a,A_1)}(1,-1)] \otimes \mathbb{Y}_7[\mathbb{T}_0^{(b,A_1)}]$$

$$\hat{\mathbb{Z}}_{31}(\boldsymbol{k}) = \frac{\mathbb{X}_{34}[\mathbb{M}_3^{(a,A_1)}(1,-1)] \otimes \mathbb{U}_5[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_3[\mathbb{T}_0^{(k,A_1)}]}{2} + \frac{\mathbb{X}_{34}[\mathbb{M}_3^{(a,A_1)}(1,-1)] \otimes \mathbb{U}_6[\mathbb{Q}_1^{(u,B_2)}] \otimes \mathbb{F}_4[\mathbb{T}_1^{(k,B_2)}]}{2}$$
$$+ \frac{\mathbb{X}_{34}[\mathbb{M}_3^{(a,A_1)}(1,-1)] \otimes \mathbb{U}_7[\mathbb{T}_0^{(u,A_1)}] \otimes \mathbb{F}_1[\mathbb{Q}_0^{(k,A_1)}]}{2} + \frac{\mathbb{X}_{34}[\mathbb{M}_3^{(a,A_1)}(1,-1)] \otimes \mathbb{U}_8[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_2[\mathbb{Q}_1^{(k,B_2)}]}{2}$$

No. 32 $\hat{\mathbb{G}}_2^{(A_1)}(1,-1)$ $[\mathrm{M}_1, \mathrm{B}_1]$

$$\hat{\mathbb{Z}}_{32} = -\frac{\sqrt{6}\mathbb{X}_{31}[\mathbb{M}_3^{(a,B_2,1)}(1,-1)] \otimes \mathbb{Y}_8[\mathbb{T}_1^{(b,B_2)}]}{4} + \frac{\sqrt{10}\mathbb{X}_{32}[\mathbb{M}_3^{(a,B_2,2)}(1,-1)] \otimes \mathbb{Y}_8[\mathbb{T}_1^{(b,B_2)}]}{4}$$

$$\hat{\mathbb{Z}}_{32}(\boldsymbol{k}) = -\frac{\sqrt{6}\mathbb{X}_{31}[\mathbb{M}_3^{(a,B_2,1)}(1,-1)] \otimes \mathbb{U}_5[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_4[\mathbb{T}_1^{(k,B_2)}]}{8} - \frac{\sqrt{6}\mathbb{X}_{31}[\mathbb{M}_3^{(a,B_2,1)}(1,-1)] \otimes \mathbb{U}_6[\mathbb{Q}_1^{(u,B_2)}] \otimes \mathbb{F}_3[\mathbb{T}_0^{(k,A_1)}]}{8}$$
$$- \frac{\sqrt{6}\mathbb{X}_{31}[\mathbb{M}_3^{(a,B_2,1)}(1,-1)] \otimes \mathbb{U}_7[\mathbb{T}_0^{(u,A_1)}] \otimes \mathbb{F}_2[\mathbb{Q}_1^{(k,B_2)}]}{8} - \frac{\sqrt{6}\mathbb{X}_{31}[\mathbb{M}_3^{(a,B_2,1)}(1,-1)] \otimes \mathbb{U}_8[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_1[\mathbb{Q}_0^{(k,A_1)}]}{8}$$
$$+ \frac{\sqrt{10}\mathbb{X}_{32}[\mathbb{M}_3^{(a,B_2,2)}(1,-1)] \otimes \mathbb{U}_5[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_4[\mathbb{T}_1^{(k,B_2)}]}{8} + \frac{\sqrt{10}\mathbb{X}_{32}[\mathbb{M}_3^{(a,B_2,2)}(1,-1)] \otimes \mathbb{U}_6[\mathbb{Q}_1^{(u,B_2)}] \otimes \mathbb{F}_3[\mathbb{T}_0^{(k,A_1)}]}{8}$$
$$+ \frac{\sqrt{10}\mathbb{X}_{32}[\mathbb{M}_3^{(a,B_2,2)}(1,-1)] \otimes \mathbb{U}_7[\mathbb{T}_0^{(u,A_1)}] \otimes \mathbb{F}_2[\mathbb{Q}_1^{(k,B_2)}]}{8} + \frac{\sqrt{10}\mathbb{X}_{32}[\mathbb{M}_3^{(a,B_2,2)}(1,-1)] \otimes \mathbb{U}_8[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_1[\mathbb{Q}_0^{(k,A_1)}]}{8}$$

No. 33 $\hat{\mathbb{Q}}_3^{(A_1,1)}(1,-1)$ $[\mathrm{M}_1,\mathrm{B}_1]$

$$\hat{\mathbb{Z}}_{33} = -\frac{\sqrt{10}\mathbb{X}_{31}[\mathbb{M}_3^{(a,B_2,1)}(1,-1)]\otimes\mathbb{Y}_8[\mathbb{T}_1^{(b,B_2)}]}{4} - \frac{\sqrt{6}\mathbb{X}_{32}[\mathbb{M}_3^{(a,B_2,2)}(1,-1)]\otimes\mathbb{Y}_8[\mathbb{T}_1^{(b,B_2)}]}{4}$$

$$\begin{aligned}\hat{\mathbb{Z}}_{33}(\boldsymbol{k}) = &-\frac{\sqrt{10}\mathbb{X}_{31}[\mathbb{M}_3^{(a,B_2,1)}(1,-1)]\otimes\mathbb{U}_5[\mathbb{Q}_0^{(u,A_1)}]\otimes\mathbb{F}_4[\mathbb{T}_1^{(k,B_2)}]}{8} - \frac{\sqrt{10}\mathbb{X}_{31}[\mathbb{M}_3^{(a,B_2,1)}(1,-1)]\otimes\mathbb{U}_6[\mathbb{Q}_1^{(u,B_2)}]\otimes\mathbb{F}_3[\mathbb{T}_0^{(k,A_1)}]}{8}\\ &-\frac{\sqrt{10}\mathbb{X}_{31}[\mathbb{M}_3^{(a,B_2,1)}(1,-1)]\otimes\mathbb{U}_7[\mathbb{T}_0^{(u,A_1)}]\otimes\mathbb{F}_2[\mathbb{Q}_1^{(k,B_2)}]}{8} - \frac{\sqrt{10}\mathbb{X}_{31}[\mathbb{M}_3^{(a,B_2,1)}(1,-1)]\otimes\mathbb{U}_8[\mathbb{T}_1^{(u,B_2)}]\otimes\mathbb{F}_1[\mathbb{Q}_0^{(k,A_1)}]}{8}\\ &-\frac{\sqrt{6}\mathbb{X}_{32}[\mathbb{M}_3^{(a,B_2,2)}(1,-1)]\otimes\mathbb{U}_5[\mathbb{Q}_0^{(u,A_1)}]\otimes\mathbb{F}_4[\mathbb{T}_1^{(k,B_2)}]}{8} - \frac{\sqrt{6}\mathbb{X}_{32}[\mathbb{M}_3^{(a,B_2,2)}(1,-1)]\otimes\mathbb{U}_6[\mathbb{Q}_1^{(u,B_2)}]\otimes\mathbb{F}_3[\mathbb{T}_0^{(k,A_1)}]}{8}\\ &-\frac{\sqrt{6}\mathbb{X}_{32}[\mathbb{M}_3^{(a,B_2,2)}(1,-1)]\otimes\mathbb{U}_7[\mathbb{T}_0^{(u,A_1)}]\otimes\mathbb{F}_2[\mathbb{Q}_1^{(k,B_2)}]}{8} - \frac{\sqrt{6}\mathbb{X}_{32}[\mathbb{M}_3^{(a,B_2,2)}(1,-1)]\otimes\mathbb{U}_8[\mathbb{T}_1^{(u,B_2)}]\otimes\mathbb{F}_1[\mathbb{Q}_0^{(k,A_1)}]}{8}\end{aligned}$$

No. 34 $\hat{\mathbb{Q}}_2^{(A_1,1)}(1,0)$ $[\mathrm{M}_1,\mathrm{B}_1]$

$$\hat{\mathbb{Z}}_{34} = \mathbb{X}_{35}[\mathbb{T}_2^{(a,A_1,1)}(1,0)]\otimes\mathbb{Y}_7[\mathbb{T}_0^{(b,A_1)}]$$

$$\begin{aligned}\hat{\mathbb{Z}}_{34}(\boldsymbol{k}) = &\frac{\mathbb{X}_{35}[\mathbb{T}_2^{(a,A_1,1)}(1,0)]\otimes\mathbb{U}_5[\mathbb{Q}_0^{(u,A_1)}]\otimes\mathbb{F}_3[\mathbb{T}_0^{(k,A_1)}]}{2} + \frac{\mathbb{X}_{35}[\mathbb{T}_2^{(a,A_1,1)}(1,0)]\otimes\mathbb{U}_6[\mathbb{Q}_1^{(u,B_2)}]\otimes\mathbb{F}_4[\mathbb{T}_1^{(k,B_2)}]}{2}\\ &+\frac{\mathbb{X}_{35}[\mathbb{T}_2^{(a,A_1,1)}(1,0)]\otimes\mathbb{U}_7[\mathbb{T}_0^{(u,A_1)}]\otimes\mathbb{F}_1[\mathbb{Q}_0^{(k,A_1)}]}{2} + \frac{\mathbb{X}_{35}[\mathbb{T}_2^{(a,A_1,1)}(1,0)]\otimes\mathbb{U}_8[\mathbb{T}_1^{(u,B_2)}]\otimes\mathbb{F}_2[\mathbb{Q}_1^{(k,B_2)}]}{2}\end{aligned}$$

No. 35 $\hat{\mathbb{Q}}_2^{(A_1,2)}(1,0)$ $[\mathrm{M}_1,\mathrm{B}_1]$

$$\hat{\mathbb{Z}}_{35} = \mathbb{X}_{36}[\mathbb{T}_2^{(a,A_1,2)}(1,0)]\otimes\mathbb{Y}_7[\mathbb{T}_0^{(b,A_1)}]$$

$$\begin{aligned}\hat{\mathbb{Z}}_{35}(\boldsymbol{k}) = &\frac{\mathbb{X}_{36}[\mathbb{T}_2^{(a,A_1,2)}(1,0)]\otimes\mathbb{U}_5[\mathbb{Q}_0^{(u,A_1)}]\otimes\mathbb{F}_3[\mathbb{T}_0^{(k,A_1)}]}{2} + \frac{\mathbb{X}_{36}[\mathbb{T}_2^{(a,A_1,2)}(1,0)]\otimes\mathbb{U}_6[\mathbb{Q}_1^{(u,B_2)}]\otimes\mathbb{F}_4[\mathbb{T}_1^{(k,B_2)}]}{2}\\ &+\frac{\mathbb{X}_{36}[\mathbb{T}_2^{(a,A_1,2)}(1,0)]\otimes\mathbb{U}_7[\mathbb{T}_0^{(u,A_1)}]\otimes\mathbb{F}_1[\mathbb{Q}_0^{(k,A_1)}]}{2} + \frac{\mathbb{X}_{36}[\mathbb{T}_2^{(a,A_1,2)}(1,0)]\otimes\mathbb{U}_8[\mathbb{T}_1^{(u,B_2)}]\otimes\mathbb{F}_2[\mathbb{Q}_1^{(k,B_2)}]}{2}\end{aligned}$$

No. 36 $\hat{\mathbb{Q}}_1^{(A_1)}(1,0)$ $[\mathrm{M}_1,\mathrm{B}_1]$

$$\hat{\mathbb{Z}}_{36} = \mathbb{X}_{33}[\mathbb{T}_2^{(a,B_2)}(1,0)]\otimes\mathbb{Y}_8[\mathbb{T}_1^{(b,B_2)}]$$

$$\begin{aligned}\hat{\mathbb{Z}}_{36}(\boldsymbol{k}) = &\frac{\mathbb{X}_{33}[\mathbb{T}_2^{(a,B_2)}(1,0)]\otimes\mathbb{U}_5[\mathbb{Q}_0^{(u,A_1)}]\otimes\mathbb{F}_4[\mathbb{T}_1^{(k,B_2)}]}{2} + \frac{\mathbb{X}_{33}[\mathbb{T}_2^{(a,B_2)}(1,0)]\otimes\mathbb{U}_6[\mathbb{Q}_1^{(u,B_2)}]\otimes\mathbb{F}_3[\mathbb{T}_0^{(k,A_1)}]}{2}\\ &+\frac{\mathbb{X}_{33}[\mathbb{T}_2^{(a,B_2)}(1,0)]\otimes\mathbb{U}_7[\mathbb{T}_0^{(u,A_1)}]\otimes\mathbb{F}_2[\mathbb{Q}_1^{(k,B_2)}]}{2} + \frac{\mathbb{X}_{33}[\mathbb{T}_2^{(a,B_2)}(1,0)]\otimes\mathbb{U}_8[\mathbb{T}_1^{(u,B_2)}]\otimes\mathbb{F}_1[\mathbb{Q}_0^{(k,A_1)}]}{2}\end{aligned}$$

No. 37 $\hat{\mathbb{Q}}_0^{(A_1)}$ $[\mathrm{M}_1, \mathrm{B}_2]$

$$\hat{\mathbb{Z}}_{37} = \mathbb{X}_1[\mathbb{Q}_0^{(a,A_1)}] \otimes \mathbb{Y}_9[\mathbb{Q}_0^{(b,A_1)}]$$

$$\begin{aligned}\hat{\mathbb{Z}}_{37}(\boldsymbol{k}) = &\frac{\mathbb{X}_1[\mathbb{Q}_0^{(a,A_1)}] \otimes \mathbb{U}_{10}[\mathbb{Q}_1^{(u,B_2)}] \otimes \mathbb{F}_7[\mathbb{Q}_1^{(k,B_2)}]}{2} - \frac{\mathbb{X}_1[\mathbb{Q}_0^{(a,A_1)}] \otimes \mathbb{U}_{11}[\mathbb{T}_0^{(u,A_1)}] \otimes \mathbb{F}_9[\mathbb{T}_0^{(k,A_1)}]}{2} \\ &- \frac{\mathbb{X}_1[\mathbb{Q}_0^{(a,A_1)}] \otimes \mathbb{U}_{12}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{11}[\mathbb{T}_1^{(k,B_2)}]}{2} + \frac{\mathbb{X}_1[\mathbb{Q}_0^{(a,A_1)}] \otimes \mathbb{U}_9[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_5[\mathbb{Q}_0^{(k,A_1)}]}{2}\end{aligned}$$

No. 38 $\hat{\mathbb{Q}}_2^{(A_1,1)}$ $[\mathrm{M}_1, \mathrm{B}_2]$

$$\hat{\mathbb{Z}}_{38} = \mathbb{X}_2[\mathbb{Q}_2^{(a,A_1,1)}] \otimes \mathbb{Y}_9[\mathbb{Q}_0^{(b,A_1)}]$$

$$\begin{aligned}\hat{\mathbb{Z}}_{38}(\boldsymbol{k}) = &\frac{\mathbb{X}_2[\mathbb{Q}_2^{(a,A_1,1)}] \otimes \mathbb{U}_{10}[\mathbb{Q}_1^{(u,B_2)}] \otimes \mathbb{F}_7[\mathbb{Q}_1^{(k,B_2)}]}{2} - \frac{\mathbb{X}_2[\mathbb{Q}_2^{(a,A_1,1)}] \otimes \mathbb{U}_{11}[\mathbb{T}_0^{(u,A_1)}] \otimes \mathbb{F}_9[\mathbb{T}_0^{(k,A_1)}]}{2} \\ &- \frac{\mathbb{X}_2[\mathbb{Q}_2^{(a,A_1,1)}] \otimes \mathbb{U}_{12}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{11}[\mathbb{T}_1^{(k,B_2)}]}{2} + \frac{\mathbb{X}_2[\mathbb{Q}_2^{(a,A_1,1)}] \otimes \mathbb{U}_9[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_5[\mathbb{Q}_0^{(k,A_1)}]}{2}\end{aligned}$$

No. 39 $\hat{\mathbb{Q}}_2^{(A_1,2)}$ $[\mathrm{M}_1, \mathrm{B}_2]$

$$\hat{\mathbb{Z}}_{39} = \mathbb{X}_3[\mathbb{Q}_2^{(a,A_1,2)}] \otimes \mathbb{Y}_9[\mathbb{Q}_0^{(b,A_1)}]$$

$$\begin{aligned}\hat{\mathbb{Z}}_{39}(\boldsymbol{k}) = &\frac{\mathbb{X}_3[\mathbb{Q}_2^{(a,A_1,2)}] \otimes \mathbb{U}_{10}[\mathbb{Q}_1^{(u,B_2)}] \otimes \mathbb{F}_7[\mathbb{Q}_1^{(k,B_2)}]}{2} - \frac{\mathbb{X}_3[\mathbb{Q}_2^{(a,A_1,2)}] \otimes \mathbb{U}_{11}[\mathbb{T}_0^{(u,A_1)}] \otimes \mathbb{F}_9[\mathbb{T}_0^{(k,A_1)}]}{2} \\ &- \frac{\mathbb{X}_3[\mathbb{Q}_2^{(a,A_1,2)}] \otimes \mathbb{U}_{12}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{11}[\mathbb{T}_1^{(k,B_2)}]}{2} + \frac{\mathbb{X}_3[\mathbb{Q}_2^{(a,A_1,2)}] \otimes \mathbb{U}_9[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_5[\mathbb{Q}_0^{(k,A_1)}]}{2}\end{aligned}$$

No. 40 $\hat{\mathbb{Q}}_1^{(A_1)}$ $[\mathrm{M}_1, \mathrm{B}_2]$

$$\hat{\mathbb{Z}}_{40} = \frac{\sqrt{2}\mathbb{X}_8[\mathbb{Q}_2^{(a,B_1)}] \otimes \mathbb{Y}_{10}[\mathbb{Q}_1^{(b,B_1)}]}{2} + \frac{\sqrt{2}\mathbb{X}_9[\mathbb{Q}_2^{(a,B_2)}] \otimes \mathbb{Y}_{11}[\mathbb{Q}_1^{(b,B_2)}]}{2}$$

$$\begin{aligned}\hat{\mathbb{Z}}_{40}(\boldsymbol{k}) = &\frac{\sqrt{2}\mathbb{X}_8[\mathbb{Q}_2^{(a,B_1)}] \otimes \mathbb{U}_{10}[\mathbb{Q}_1^{(u,B_2)}] \otimes \mathbb{F}_8[\mathbb{Q}_2^{(k,A_2)}]}{4} - \frac{\sqrt{2}\mathbb{X}_8[\mathbb{Q}_2^{(a,B_1)}] \otimes \mathbb{U}_{11}[\mathbb{T}_0^{(u,A_1)}] \otimes \mathbb{F}_{10}[\mathbb{T}_1^{(k,B_1)}]}{4} - \frac{\sqrt{2}\mathbb{X}_8[\mathbb{Q}_2^{(a,B_1)}] \otimes \mathbb{U}_{12}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{12}[\mathbb{T}_2^{(k,A_2)}]}{4} \\ &+ \frac{\sqrt{2}\mathbb{X}_8[\mathbb{Q}_2^{(a,B_1)}] \otimes \mathbb{U}_9[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_6[\mathbb{Q}_1^{(k,B_1)}]}{4} + \frac{\sqrt{2}\mathbb{X}_9[\mathbb{Q}_2^{(a,B_2)}] \otimes \mathbb{U}_{10}[\mathbb{Q}_1^{(u,B_2)}] \otimes \mathbb{F}_5[\mathbb{Q}_0^{(k,A_1)}]}{4} \\ &- \frac{\sqrt{2}\mathbb{X}_9[\mathbb{Q}_2^{(a,B_2)}] \otimes \mathbb{U}_{11}[\mathbb{T}_0^{(u,A_1)}] \otimes \mathbb{F}_{11}[\mathbb{T}_1^{(k,B_2)}]}{4} - \frac{\sqrt{2}\mathbb{X}_9[\mathbb{Q}_2^{(a,B_2)}] \otimes \mathbb{U}_{12}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_9[\mathbb{T}_0^{(k,A_1)}]}{4} + \frac{\sqrt{2}\mathbb{X}_9[\mathbb{Q}_2^{(a,B_2)}] \otimes \mathbb{U}_9[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_7[\mathbb{Q}_1^{(k,B_2)}]}{4}\end{aligned}$$

No. 41 $\hat{\mathbb{G}}_2^{(A_1)}$ $[\mathrm{M}_1, \mathrm{B}_2]$

$$\hat{\mathbb{Z}}_{41} = \frac{\sqrt{2}\mathbb{X}_8[\mathbb{Q}_2^{(a,B_1)}] \otimes \mathbb{Y}_{10}[\mathbb{Q}_1^{(b,B_1)}]}{2} - \frac{\sqrt{2}\mathbb{X}_9[\mathbb{Q}_2^{(a,B_2)}] \otimes \mathbb{Y}_{11}[\mathbb{Q}_1^{(b,B_2)}]}{2}$$

$$\begin{aligned}\hat{\mathbb{Z}}_{41}(\boldsymbol{k}) = {} & \frac{\sqrt{2}\mathbb{X}_8[\mathbb{Q}_2^{(a,B_1)}] \otimes \mathbb{U}_{10}[\mathbb{Q}_1^{(u,B_2)}] \otimes \mathbb{F}_8[\mathbb{Q}_2^{(k,A_2)}]}{4} - \frac{\sqrt{2}\mathbb{X}_8[\mathbb{Q}_2^{(a,B_1)}] \otimes \mathbb{U}_{11}[\mathbb{T}_0^{(u,A_1)}] \otimes \mathbb{F}_{10}[\mathbb{T}_1^{(k,B_1)}]}{4} - \frac{\sqrt{2}\mathbb{X}_8[\mathbb{Q}_2^{(a,B_1)}] \otimes \mathbb{U}_{12}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{12}[\mathbb{T}_2^{(k,A_2)}]}{4} \\ & + \frac{\sqrt{2}\mathbb{X}_8[\mathbb{Q}_2^{(a,B_1)}] \otimes \mathbb{U}_9[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_6[\mathbb{Q}_1^{(k,B_1)}]}{4} - \frac{\sqrt{2}\mathbb{X}_9[\mathbb{Q}_2^{(a,B_2)}] \otimes \mathbb{U}_{10}[\mathbb{Q}_1^{(u,B_2)}] \otimes \mathbb{F}_5[\mathbb{Q}_0^{(k,A_1)}]}{4} \\ & + \frac{\sqrt{2}\mathbb{X}_9[\mathbb{Q}_2^{(a,B_2)}] \otimes \mathbb{U}_{11}[\mathbb{T}_0^{(u,A_1)}] \otimes \mathbb{F}_{11}[\mathbb{T}_1^{(k,B_2)}]}{4} + \frac{\sqrt{2}\mathbb{X}_9[\mathbb{Q}_2^{(a,B_2)}] \otimes \mathbb{U}_{12}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_9[\mathbb{T}_0^{(k,A_1)}]}{4} - \frac{\sqrt{2}\mathbb{X}_9[\mathbb{Q}_2^{(a,B_2)}] \otimes \mathbb{U}_9[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_7[\mathbb{Q}_1^{(k,B_2)}]}{4}\end{aligned}$$

No. 42 $\hat{\mathbb{Q}}_0^{(A_1)}$ $[\mathrm{M}_1, \mathrm{B}_2]$

$$\hat{\mathbb{Z}}_{42} = \mathbb{X}_7[\mathbb{Q}_2^{(a,A_2)}] \otimes \mathbb{Y}_{12}[\mathbb{Q}_2^{(b,A_2)}]$$

$$\begin{aligned}\hat{\mathbb{Z}}_{42}(\boldsymbol{k}) = {} & \frac{\mathbb{X}_7[\mathbb{Q}_2^{(a,A_2)}] \otimes \mathbb{U}_{10}[\mathbb{Q}_1^{(u,B_2)}] \otimes \mathbb{F}_6[\mathbb{Q}_1^{(k,B_1)}]}{2} - \frac{\mathbb{X}_7[\mathbb{Q}_2^{(a,A_2)}] \otimes \mathbb{U}_{11}[\mathbb{T}_0^{(u,A_1)}] \otimes \mathbb{F}_{12}[\mathbb{T}_2^{(k,A_2)}]}{2} \\ & - \frac{\mathbb{X}_7[\mathbb{Q}_2^{(a,A_2)}] \otimes \mathbb{U}_{12}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{10}[\mathbb{T}_1^{(k,B_1)}]}{2} + \frac{\mathbb{X}_7[\mathbb{Q}_2^{(a,A_2)}] \otimes \mathbb{U}_9[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_8[\mathbb{Q}_2^{(k,A_2)}]}{2}\end{aligned}$$

No. 43 $\hat{\mathbb{Q}}_0^{(A_1)}(1,1)$ $[\mathrm{M}_1, \mathrm{B}_2]$

$$\hat{\mathbb{Z}}_{43} = \mathbb{X}_4[\mathbb{Q}_0^{(a,A_1)}(1,1)] \otimes \mathbb{Y}_9[\mathbb{Q}_0^{(b,A_1)}]$$

$$\begin{aligned}\hat{\mathbb{Z}}_{43}(\boldsymbol{k}) = {} & \frac{\mathbb{X}_4[\mathbb{Q}_0^{(a,A_1)}(1,1)] \otimes \mathbb{U}_{10}[\mathbb{Q}_1^{(u,B_2)}] \otimes \mathbb{F}_7[\mathbb{Q}_1^{(k,B_2)}]}{2} - \frac{\mathbb{X}_4[\mathbb{Q}_0^{(a,A_1)}(1,1)] \otimes \mathbb{U}_{11}[\mathbb{T}_0^{(u,A_1)}] \otimes \mathbb{F}_9[\mathbb{T}_0^{(k,A_1)}]}{2} \\ & - \frac{\mathbb{X}_4[\mathbb{Q}_0^{(a,A_1)}(1,1)] \otimes \mathbb{U}_{12}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{11}[\mathbb{T}_1^{(k,B_2)}]}{2} + \frac{\mathbb{X}_4[\mathbb{Q}_0^{(a,A_1)}(1,1)] \otimes \mathbb{U}_9[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_5[\mathbb{Q}_0^{(k,A_1)}]}{2}\end{aligned}$$

No. 44 $\hat{\mathbb{Q}}_2^{(A_1,1)}(1,-1)$ $[\mathrm{M}_1, \mathrm{B}_2]$

$$\hat{\mathbb{Z}}_{44} = \mathbb{X}_5[\mathbb{Q}_2^{(a,A_1,1)}(1,-1)] \otimes \mathbb{Y}_9[\mathbb{Q}_0^{(b,A_1)}]$$

$$\begin{aligned}\hat{\mathbb{Z}}_{44}(\boldsymbol{k}) = {} & \frac{\mathbb{X}_5[\mathbb{Q}_2^{(a,A_1,1)}(1,-1)] \otimes \mathbb{U}_{10}[\mathbb{Q}_1^{(u,B_2)}] \otimes \mathbb{F}_7[\mathbb{Q}_1^{(k,B_2)}]}{2} - \frac{\mathbb{X}_5[\mathbb{Q}_2^{(a,A_1,1)}(1,-1)] \otimes \mathbb{U}_{11}[\mathbb{T}_0^{(u,A_1)}] \otimes \mathbb{F}_9[\mathbb{T}_0^{(k,A_1)}]}{2} \\ & - \frac{\mathbb{X}_5[\mathbb{Q}_2^{(a,A_1,1)}(1,-1)] \otimes \mathbb{U}_{12}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{11}[\mathbb{T}_1^{(k,B_2)}]}{2} + \frac{\mathbb{X}_5[\mathbb{Q}_2^{(a,A_1,1)}(1,-1)] \otimes \mathbb{U}_9[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_5[\mathbb{Q}_0^{(k,A_1)}]}{2}\end{aligned}$$

No. 45 $\hat{\mathbb{Q}}_2^{(A_1,2)}(1,-1)$ $[\mathrm{M}_1,\mathrm{B}_2]$

$$\hat{\mathbb{Z}}_{45} = \mathbb{X}_6[\mathbb{Q}_2^{(a,A_1,2)}(1,-1)] \otimes \mathbb{Y}_9[\mathbb{Q}_0^{(b,A_1)}]$$

$$\begin{aligned}\hat{\mathbb{Z}}_{45}(\boldsymbol{k}) = {} & \frac{\mathbb{X}_6[\mathbb{Q}_2^{(a,A_1,2)}(1,-1)] \otimes \mathbb{U}_{10}[\mathbb{Q}_1^{(u,B_2)}] \otimes \mathbb{F}_7[\mathbb{Q}_1^{(k,B_2)}]}{2} - \frac{\mathbb{X}_6[\mathbb{Q}_2^{(a,A_1,2)}(1,-1)] \otimes \mathbb{U}_{11}[\mathbb{T}_0^{(u,A_1)}] \otimes \mathbb{F}_9[\mathbb{T}_0^{(k,A_1)}]}{2} \\ & - \frac{\mathbb{X}_6[\mathbb{Q}_2^{(a,A_1,2)}(1,-1)] \otimes \mathbb{U}_{12}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{11}[\mathbb{T}_1^{(k,B_2)}]}{2} + \frac{\mathbb{X}_6[\mathbb{Q}_2^{(a,A_1,2)}(1,-1)] \otimes \mathbb{U}_9[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_5[\mathbb{Q}_0^{(k,A_1)}]}{2}\end{aligned}$$

No. 46 $\hat{\mathbb{Q}}_1^{(A_1)}(1,-1)$ $[\mathrm{M}_1,\mathrm{B}_2]$

$$\hat{\mathbb{Z}}_{46} = \frac{\sqrt{2}\mathbb{X}_{12}[\mathbb{Q}_2^{(a,B_1)}(1,-1)] \otimes \mathbb{Y}_{10}[\mathbb{Q}_1^{(b,B_1)}]}{2} + \frac{\sqrt{2}\mathbb{X}_{14}[\mathbb{Q}_2^{(a,B_2)}(1,-1)] \otimes \mathbb{Y}_{11}[\mathbb{Q}_1^{(b,B_2)}]}{2}$$

$$\begin{aligned}\hat{\mathbb{Z}}_{46}(\boldsymbol{k}) = {} & \frac{\sqrt{2}\mathbb{X}_{12}[\mathbb{Q}_2^{(a,B_1)}(1,-1)] \otimes \mathbb{U}_{10}[\mathbb{Q}_1^{(u,B_2)}] \otimes \mathbb{F}_8[\mathbb{Q}_2^{(k,A_2)}]}{4} - \frac{\sqrt{2}\mathbb{X}_{12}[\mathbb{Q}_2^{(a,B_1)}(1,-1)] \otimes \mathbb{U}_{11}[\mathbb{T}_0^{(u,A_1)}] \otimes \mathbb{F}_{10}[\mathbb{T}_1^{(k,B_1)}]}{4} \\ & - \frac{\sqrt{2}\mathbb{X}_{12}[\mathbb{Q}_2^{(a,B_1)}(1,-1)] \otimes \mathbb{U}_{12}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{12}[\mathbb{T}_2^{(k,A_2)}]}{4} + \frac{\sqrt{2}\mathbb{X}_{12}[\mathbb{Q}_2^{(a,B_1)}(1,-1)] \otimes \mathbb{U}_9[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_6[\mathbb{Q}_1^{(k,B_1)}]}{4} \\ & + \frac{\sqrt{2}\mathbb{X}_{14}[\mathbb{Q}_2^{(a,B_2)}(1,-1)] \otimes \mathbb{U}_{10}[\mathbb{Q}_1^{(u,B_2)}] \otimes \mathbb{F}_5[\mathbb{Q}_0^{(k,A_1)}]}{4} - \frac{\sqrt{2}\mathbb{X}_{14}[\mathbb{Q}_2^{(a,B_2)}(1,-1)] \otimes \mathbb{U}_{11}[\mathbb{T}_0^{(u,A_1)}] \otimes \mathbb{F}_{11}[\mathbb{T}_1^{(k,B_2)}]}{4} \\ & - \frac{\sqrt{2}\mathbb{X}_{14}[\mathbb{Q}_2^{(a,B_2)}(1,-1)] \otimes \mathbb{U}_{12}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_9[\mathbb{T}_0^{(k,A_1)}]}{4} + \frac{\sqrt{2}\mathbb{X}_{14}[\mathbb{Q}_2^{(a,B_2)}(1,-1)] \otimes \mathbb{U}_9[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_7[\mathbb{Q}_1^{(k,B_2)}]}{4}\end{aligned}$$

No. 47 $\hat{\mathbb{G}}_2^{(A_1)}(1,-1)$ $[\mathrm{M}_1,\mathrm{B}_2]$

$$\hat{\mathbb{Z}}_{47} = \frac{\sqrt{2}\mathbb{X}_{12}[\mathbb{Q}_2^{(a,B_1)}(1,-1)] \otimes \mathbb{Y}_{10}[\mathbb{Q}_1^{(b,B_1)}]}{2} - \frac{\sqrt{2}\mathbb{X}_{14}[\mathbb{Q}_2^{(a,B_2)}(1,-1)] \otimes \mathbb{Y}_{11}[\mathbb{Q}_1^{(b,B_2)}]}{2}$$

$$\begin{aligned}\hat{\mathbb{Z}}_{47}(\boldsymbol{k}) = {} & \frac{\sqrt{2}\mathbb{X}_{12}[\mathbb{Q}_2^{(a,B_1)}(1,-1)] \otimes \mathbb{U}_{10}[\mathbb{Q}_1^{(u,B_2)}] \otimes \mathbb{F}_8[\mathbb{Q}_2^{(k,A_2)}]}{4} - \frac{\sqrt{2}\mathbb{X}_{12}[\mathbb{Q}_2^{(a,B_1)}(1,-1)] \otimes \mathbb{U}_{11}[\mathbb{T}_0^{(u,A_1)}] \otimes \mathbb{F}_{10}[\mathbb{T}_1^{(k,B_1)}]}{4} \\ & - \frac{\sqrt{2}\mathbb{X}_{12}[\mathbb{Q}_2^{(a,B_1)}(1,-1)] \otimes \mathbb{U}_{12}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{12}[\mathbb{T}_2^{(k,A_2)}]}{4} + \frac{\sqrt{2}\mathbb{X}_{12}[\mathbb{Q}_2^{(a,B_1)}(1,-1)] \otimes \mathbb{U}_9[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_6[\mathbb{Q}_1^{(k,B_1)}]}{4} \\ & - \frac{\sqrt{2}\mathbb{X}_{14}[\mathbb{Q}_2^{(a,B_2)}(1,-1)] \otimes \mathbb{U}_{10}[\mathbb{Q}_1^{(u,B_2)}] \otimes \mathbb{F}_5[\mathbb{Q}_0^{(k,A_1)}]}{4} + \frac{\sqrt{2}\mathbb{X}_{14}[\mathbb{Q}_2^{(a,B_2)}(1,-1)] \otimes \mathbb{U}_{11}[\mathbb{T}_0^{(u,A_1)}] \otimes \mathbb{F}_{11}[\mathbb{T}_1^{(k,B_2)}]}{4} \\ & + \frac{\sqrt{2}\mathbb{X}_{14}[\mathbb{Q}_2^{(a,B_2)}(1,-1)] \otimes \mathbb{U}_{12}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_9[\mathbb{T}_0^{(k,A_1)}]}{4} - \frac{\sqrt{2}\mathbb{X}_{14}[\mathbb{Q}_2^{(a,B_2)}(1,-1)] \otimes \mathbb{U}_9[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_7[\mathbb{Q}_1^{(k,B_2)}]}{4}\end{aligned}$$

No. 48 $\hat{\mathbb{Q}}_0^{(A_1)}(1,-1)$ $[\mathrm{M}_1,\mathrm{B}_2]$

$$\hat{\mathbb{Z}}_{48} = \mathbb{X}_{10}[\mathbb{Q}_2^{(a,A_2)}(1,-1)] \otimes \mathbb{Y}_{12}[\mathbb{Q}_2^{(b,A_2)}]$$

$$\hat{\mathbb{Z}}_{48}(\boldsymbol{k}) = \frac{\mathbb{X}_{10}[\mathbb{Q}_2^{(a,A_2)}(1,-1)] \otimes \mathbb{U}_{10}[\mathbb{Q}_1^{(u,B_2)}] \otimes \mathbb{F}_6[\mathbb{Q}_1^{(k,B_1)}]}{2} - \frac{\mathbb{X}_{10}[\mathbb{Q}_2^{(a,A_2)}(1,-1)] \otimes \mathbb{U}_{11}[\mathbb{T}_0^{(u,A_1)}] \otimes \mathbb{F}_{12}[\mathbb{T}_2^{(k,A_2)}]}{2}$$
$$- \frac{\mathbb{X}_{10}[\mathbb{Q}_2^{(a,A_2)}(1,-1)] \otimes \mathbb{U}_{12}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{10}[\mathbb{T}_1^{(k,B_1)}]}{2} + \frac{\mathbb{X}_{10}[\mathbb{Q}_2^{(a,A_2)}(1,-1)] \otimes \mathbb{U}_9[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_8[\mathbb{Q}_2^{(k,A_2)}]}{2}$$

No. 49 $\hat{\mathbb{Q}}_1^{(A_1)}(1,0)$ $[\mathrm{M}_1, \mathrm{B}_2]$

$$\hat{\mathbb{Z}}_{49} = -\frac{\sqrt{2}\mathbb{X}_{13}[\mathbb{G}_1^{(a,B_1)}(1,0)] \otimes \mathbb{Y}_{10}[\mathbb{Q}_1^{(b,B_1)}]}{2} + \frac{\sqrt{2}\mathbb{X}_{15}[\mathbb{G}_1^{(a,B_2)}(1,0)] \otimes \mathbb{Y}_{11}[\mathbb{Q}_1^{(b,B_2)}]}{2}$$

$$\hat{\mathbb{Z}}_{49}(\boldsymbol{k}) = -\frac{\sqrt{2}\mathbb{X}_{13}[\mathbb{G}_1^{(a,B_1)}(1,0)] \otimes \mathbb{U}_{10}[\mathbb{Q}_1^{(u,B_2)}] \otimes \mathbb{F}_8[\mathbb{Q}_2^{(k,A_2)}]}{4} + \frac{\sqrt{2}\mathbb{X}_{13}[\mathbb{G}_1^{(a,B_1)}(1,0)] \otimes \mathbb{U}_{11}[\mathbb{T}_0^{(u,A_1)}] \otimes \mathbb{F}_{10}[\mathbb{T}_1^{(k,B_1)}]}{4}$$
$$+ \frac{\sqrt{2}\mathbb{X}_{13}[\mathbb{G}_1^{(a,B_1)}(1,0)] \otimes \mathbb{U}_{12}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{12}[\mathbb{T}_2^{(k,A_2)}]}{4} - \frac{\sqrt{2}\mathbb{X}_{13}[\mathbb{G}_1^{(a,B_1)}(1,0)] \otimes \mathbb{U}_9[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_6[\mathbb{Q}_1^{(k,B_1)}]}{4} + \frac{\sqrt{2}\mathbb{X}_{15}[\mathbb{G}_1^{(a,B_2)}(1,0)] \otimes \mathbb{U}_{10}[\mathbb{Q}_1^{(u,B_2)}] \otimes \mathbb{F}_5[\mathbb{Q}_0^{(k,A_1)}]}{4}$$
$$- \frac{\sqrt{2}\mathbb{X}_{15}[\mathbb{G}_1^{(a,B_2)}(1,0)] \otimes \mathbb{U}_{11}[\mathbb{T}_0^{(u,A_1)}] \otimes \mathbb{F}_{11}[\mathbb{T}_1^{(k,B_2)}]}{4} - \frac{\sqrt{2}\mathbb{X}_{15}[\mathbb{G}_1^{(a,B_2)}(1,0)] \otimes \mathbb{U}_{12}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_9[\mathbb{T}_0^{(k,A_1)}]}{4} + \frac{\sqrt{2}\mathbb{X}_{15}[\mathbb{G}_1^{(a,B_2)}(1,0)] \otimes \mathbb{U}_9[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_7[\mathbb{Q}_1^{(k,B_2)}]}{4}$$

No. 50 $\hat{\mathbb{G}}_2^{(A_1)}(1,0)$ $[\mathrm{M}_1, \mathrm{B}_2]$

$$\hat{\mathbb{Z}}_{50} = \frac{\sqrt{2}\mathbb{X}_{13}[\mathbb{G}_1^{(a,B_1)}(1,0)] \otimes \mathbb{Y}_{10}[\mathbb{Q}_1^{(b,B_1)}]}{2} + \frac{\sqrt{2}\mathbb{X}_{15}[\mathbb{G}_1^{(a,B_2)}(1,0)] \otimes \mathbb{Y}_{11}[\mathbb{Q}_1^{(b,B_2)}]}{2}$$

$$\hat{\mathbb{Z}}_{50}(\boldsymbol{k}) = \frac{\sqrt{2}\mathbb{X}_{13}[\mathbb{G}_1^{(a,B_1)}(1,0)] \otimes \mathbb{U}_{10}[\mathbb{Q}_1^{(u,B_2)}] \otimes \mathbb{F}_8[\mathbb{Q}_2^{(k,A_2)}]}{4} - \frac{\sqrt{2}\mathbb{X}_{13}[\mathbb{G}_1^{(a,B_1)}(1,0)] \otimes \mathbb{U}_{11}[\mathbb{T}_0^{(u,A_1)}] \otimes \mathbb{F}_{10}[\mathbb{T}_1^{(k,B_1)}]}{4} - \frac{\sqrt{2}\mathbb{X}_{13}[\mathbb{G}_1^{(a,B_1)}(1,0)] \otimes \mathbb{U}_{12}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{12}[\mathbb{T}_2^{(k,A_2)}]}{4}$$
$$+ \frac{\sqrt{2}\mathbb{X}_{13}[\mathbb{G}_1^{(a,B_1)}(1,0)] \otimes \mathbb{U}_9[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_6[\mathbb{Q}_1^{(k,B_1)}]}{4} + \frac{\sqrt{2}\mathbb{X}_{15}[\mathbb{G}_1^{(a,B_2)}(1,0)] \otimes \mathbb{U}_{10}[\mathbb{Q}_1^{(u,B_2)}] \otimes \mathbb{F}_5[\mathbb{Q}_0^{(k,A_1)}]}{4} - \frac{\sqrt{2}\mathbb{X}_{15}[\mathbb{G}_1^{(a,B_2)}(1,0)] \otimes \mathbb{U}_{11}[\mathbb{T}_0^{(u,A_1)}] \otimes \mathbb{F}_{11}[\mathbb{T}_1^{(k,B_2)}]}{4}$$
$$- \frac{\sqrt{2}\mathbb{X}_{15}[\mathbb{G}_1^{(a,B_2)}(1,0)] \otimes \mathbb{U}_{12}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_9[\mathbb{T}_0^{(k,A_1)}]}{4} + \frac{\sqrt{2}\mathbb{X}_{15}[\mathbb{G}_1^{(a,B_2)}(1,0)] \otimes \mathbb{U}_9[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_7[\mathbb{Q}_1^{(k,B_2)}]}{4}$$

No. 51 $\hat{\mathbb{Q}}_2^{(A_1,2)}(1,0)$ $[\mathrm{M}_1, \mathrm{B}_2]$

$$\hat{\mathbb{Z}}_{51} = -\mathbb{X}_{11}[\mathbb{G}_1^{(a,A_2)}(1,0)] \otimes \mathbb{Y}_{12}[\mathbb{Q}_2^{(b,A_2)}]$$

$$\hat{\mathbb{Z}}_{51}(\boldsymbol{k}) = -\frac{\mathbb{X}_{11}[\mathbb{G}_1^{(a,A_2)}(1,0)] \otimes \mathbb{U}_{10}[\mathbb{Q}_1^{(u,B_2)}] \otimes \mathbb{F}_6[\mathbb{Q}_1^{(k,B_1)}]}{2} + \frac{\mathbb{X}_{11}[\mathbb{G}_1^{(a,A_2)}(1,0)] \otimes \mathbb{U}_{11}[\mathbb{T}_0^{(u,A_1)}] \otimes \mathbb{F}_{12}[\mathbb{T}_2^{(k,A_2)}]}{2}$$
$$+ \frac{\mathbb{X}_{11}[\mathbb{G}_1^{(a,A_2)}(1,0)] \otimes \mathbb{U}_{12}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{10}[\mathbb{T}_1^{(k,B_1)}]}{2} - \frac{\mathbb{X}_{11}[\mathbb{G}_1^{(a,A_2)}(1,0)] \otimes \mathbb{U}_9[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_8[\mathbb{Q}_2^{(k,A_2)}]}{2}$$

No. 52 $\hat{\mathbb{Q}}_1^{(A_1)}$ $[\mathrm{M}_1, \mathrm{B}_2]$

$$\hat{\mathbb{Z}}_{52} = -\frac{\sqrt{2}\mathbb{X}_{17}[\mathbb{M}_1^{(a,B_1)}] \otimes \mathbb{Y}_{14}[\mathbb{T}_1^{(b,B_1)}]}{2} + \frac{\sqrt{2}\mathbb{X}_{18}[\mathbb{M}_1^{(a,B_2)}] \otimes \mathbb{Y}_{15}[\mathbb{T}_1^{(b,B_2)}]}{2}$$

$$\begin{aligned}\hat{\mathbb{Z}}_{52}(\boldsymbol{k}) = &-\frac{\sqrt{2}\mathbb{X}_{17}[\mathbb{M}_1^{(a,B_1)}] \otimes \mathbb{U}_{10}[\mathbb{Q}_1^{(u,B_2)}] \otimes \mathbb{F}_{12}[\mathbb{T}_2^{(k,A_2)}]}{4} - \frac{\sqrt{2}\mathbb{X}_{17}[\mathbb{M}_1^{(a,B_1)}] \otimes \mathbb{U}_{11}[\mathbb{T}_0^{(u,A_1)}] \otimes \mathbb{F}_6[\mathbb{Q}_1^{(k,B_1)}]}{4} \\ &- \frac{\sqrt{2}\mathbb{X}_{17}[\mathbb{M}_1^{(a,B_1)}] \otimes \mathbb{U}_{12}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_8[\mathbb{Q}_2^{(k,A_2)}]}{4} - \frac{\sqrt{2}\mathbb{X}_{17}[\mathbb{M}_1^{(a,B_1)}] \otimes \mathbb{U}_9[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{10}[\mathbb{T}_1^{(k,B_1)}]}{4} + \frac{\sqrt{2}\mathbb{X}_{18}[\mathbb{M}_1^{(a,B_2)}] \otimes \mathbb{U}_{10}[\mathbb{Q}_1^{(u,B_2)}] \otimes \mathbb{F}_9[\mathbb{T}_0^{(k,A_1)}]}{4} \\ &+ \frac{\sqrt{2}\mathbb{X}_{18}[\mathbb{M}_1^{(a,B_2)}] \otimes \mathbb{U}_{11}[\mathbb{T}_0^{(u,A_1)}] \otimes \mathbb{F}_7[\mathbb{Q}_1^{(k,B_2)}]}{4} + \frac{\sqrt{2}\mathbb{X}_{18}[\mathbb{M}_1^{(a,B_2)}] \otimes \mathbb{U}_{12}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_5[\mathbb{Q}_0^{(k,A_1)}]}{4} + \frac{\sqrt{2}\mathbb{X}_{18}[\mathbb{M}_1^{(a,B_2)}] \otimes \mathbb{U}_9[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{11}[\mathbb{T}_1^{(k,B_2)}]}{4}\end{aligned}$$

No. 53 $\hat{\mathbb{G}}_2^{(A_1)}$ $[\mathrm{M}_1, \mathrm{B}_2]$

$$\hat{\mathbb{Z}}_{53} = \frac{\sqrt{2}\mathbb{X}_{17}[\mathbb{M}_1^{(a,B_1)}] \otimes \mathbb{Y}_{14}[\mathbb{T}_1^{(b,B_1)}]}{2} + \frac{\sqrt{2}\mathbb{X}_{18}[\mathbb{M}_1^{(a,B_2)}] \otimes \mathbb{Y}_{15}[\mathbb{T}_1^{(b,B_2)}]}{2}$$

$$\begin{aligned}\hat{\mathbb{Z}}_{53}(\boldsymbol{k}) = &\frac{\sqrt{2}\mathbb{X}_{17}[\mathbb{M}_1^{(a,B_1)}] \otimes \mathbb{U}_{10}[\mathbb{Q}_1^{(u,B_2)}] \otimes \mathbb{F}_{12}[\mathbb{T}_2^{(k,A_2)}]}{4} + \frac{\sqrt{2}\mathbb{X}_{17}[\mathbb{M}_1^{(a,B_1)}] \otimes \mathbb{U}_{11}[\mathbb{T}_0^{(u,A_1)}] \otimes \mathbb{F}_6[\mathbb{Q}_1^{(k,B_1)}]}{4} + \frac{\sqrt{2}\mathbb{X}_{17}[\mathbb{M}_1^{(a,B_1)}] \otimes \mathbb{U}_{12}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_8[\mathbb{Q}_2^{(k,A_2)}]}{4} \\ &+ \frac{\sqrt{2}\mathbb{X}_{17}[\mathbb{M}_1^{(a,B_1)}] \otimes \mathbb{U}_9[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{10}[\mathbb{T}_1^{(k,B_1)}]}{4} + \frac{\sqrt{2}\mathbb{X}_{18}[\mathbb{M}_1^{(a,B_2)}] \otimes \mathbb{U}_{10}[\mathbb{Q}_1^{(u,B_2)}] \otimes \mathbb{F}_9[\mathbb{T}_0^{(k,A_1)}]}{4} + \frac{\sqrt{2}\mathbb{X}_{18}[\mathbb{M}_1^{(a,B_2)}] \otimes \mathbb{U}_{11}[\mathbb{T}_0^{(u,A_1)}] \otimes \mathbb{F}_7[\mathbb{Q}_1^{(k,B_2)}]}{4} \\ &+ \frac{\sqrt{2}\mathbb{X}_{18}[\mathbb{M}_1^{(a,B_2)}] \otimes \mathbb{U}_{12}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_5[\mathbb{Q}_0^{(k,A_1)}]}{4} + \frac{\sqrt{2}\mathbb{X}_{18}[\mathbb{M}_1^{(a,B_2)}] \otimes \mathbb{U}_9[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{11}[\mathbb{T}_1^{(k,B_2)}]}{4}\end{aligned}$$

No. 54 $\hat{\mathbb{Q}}_2^{(A_1,2)}$ $[\mathrm{M}_1, \mathrm{B}_2]$

$$\hat{\mathbb{Z}}_{54} = -\mathbb{X}_{16}[\mathbb{M}_1^{(a,A_2)}] \otimes \mathbb{Y}_{16}[\mathbb{T}_2^{(b,A_2)}]$$

$$\begin{aligned}\hat{\mathbb{Z}}_{54}(\boldsymbol{k}) = &-\frac{\mathbb{X}_{16}[\mathbb{M}_1^{(a,A_2)}] \otimes \mathbb{U}_{10}[\mathbb{Q}_1^{(u,B_2)}] \otimes \mathbb{F}_{10}[\mathbb{T}_1^{(k,B_1)}]}{2} - \frac{\mathbb{X}_{16}[\mathbb{M}_1^{(a,A_2)}] \otimes \mathbb{U}_{11}[\mathbb{T}_0^{(u,A_1)}] \otimes \mathbb{F}_8[\mathbb{Q}_2^{(k,A_2)}]}{2} \\ &- \frac{\mathbb{X}_{16}[\mathbb{M}_1^{(a,A_2)}] \otimes \mathbb{U}_{12}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_6[\mathbb{Q}_1^{(k,B_1)}]}{2} - \frac{\mathbb{X}_{16}[\mathbb{M}_1^{(a,A_2)}] \otimes \mathbb{U}_9[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{12}[\mathbb{T}_2^{(k,A_2)}]}{2}\end{aligned}$$

No. 55 $\hat{\mathbb{Q}}_1^{(A_1)}(1,1)$ $[\mathrm{M}_1, \mathrm{B}_2]$

$$\hat{\mathbb{Z}}_{55} = -\frac{\sqrt{2}\mathbb{X}_{24}[\mathbb{M}_1^{(a,B_1)}(1,1)] \otimes \mathbb{Y}_{14}[\mathbb{T}_1^{(b,B_1)}]}{2} + \frac{\sqrt{2}\mathbb{X}_{29}[\mathbb{M}_1^{(a,B_2)}(1,1)] \otimes \mathbb{Y}_{15}[\mathbb{T}_1^{(b,B_2)}]}{2}$$

$$\hat{\mathbb{Z}}_{55}(\boldsymbol{k}) = -\frac{\sqrt{2}\mathbb{X}_{24}[\mathbb{M}_1^{(a,B_1)}(1,1)] \otimes \mathbb{U}_{10}[\mathbb{Q}_1^{(u,B_2)}] \otimes \mathbb{F}_{12}[\mathbb{T}_2^{(k,A_2)}]}{4} - \frac{\sqrt{2}\mathbb{X}_{24}[\mathbb{M}_1^{(a,B_1)}(1,1)] \otimes \mathbb{U}_{11}[\mathbb{T}_0^{(u,A_1)}] \otimes \mathbb{F}_{6}[\mathbb{Q}_1^{(k,B_1)}]}{4}$$
$$- \frac{\sqrt{2}\mathbb{X}_{24}[\mathbb{M}_1^{(a,B_1)}(1,1)] \otimes \mathbb{U}_{12}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{8}[\mathbb{Q}_2^{(k,A_2)}]}{4} - \frac{\sqrt{2}\mathbb{X}_{24}[\mathbb{M}_1^{(a,B_1)}(1,1)] \otimes \mathbb{U}_{9}[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{10}[\mathbb{T}_1^{(k,B_1)}]}{4}$$
$$+ \frac{\sqrt{2}\mathbb{X}_{29}[\mathbb{M}_1^{(a,B_2)}(1,1)] \otimes \mathbb{U}_{10}[\mathbb{Q}_1^{(u,B_2)}] \otimes \mathbb{F}_{9}[\mathbb{T}_0^{(k,A_1)}]}{4} + \frac{\sqrt{2}\mathbb{X}_{29}[\mathbb{M}_1^{(a,B_2)}(1,1)] \otimes \mathbb{U}_{11}[\mathbb{T}_0^{(u,A_1)}] \otimes \mathbb{F}_{7}[\mathbb{Q}_1^{(k,B_2)}]}{4}$$
$$+ \frac{\sqrt{2}\mathbb{X}_{29}[\mathbb{M}_1^{(a,B_2)}(1,1)] \otimes \mathbb{U}_{12}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{5}[\mathbb{Q}_0^{(k,A_1)}]}{4} + \frac{\sqrt{2}\mathbb{X}_{29}[\mathbb{M}_1^{(a,B_2)}(1,1)] \otimes \mathbb{U}_{9}[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{11}[\mathbb{T}_1^{(k,B_2)}]}{4}$$

No. 56 $\hat{\mathbb{G}}_2^{(A_1)}(1,1)$ $[\mathrm{M}_1, \mathrm{B}_2]$

$$\hat{\mathbb{Z}}_{56} = \frac{\sqrt{2}\mathbb{X}_{24}[\mathbb{M}_1^{(a,B_1)}(1,1)] \otimes \mathbb{Y}_{14}[\mathbb{T}_1^{(b,B_1)}]}{2} + \frac{\sqrt{2}\mathbb{X}_{29}[\mathbb{M}_1^{(a,B_2)}(1,1)] \otimes \mathbb{Y}_{15}[\mathbb{T}_1^{(b,B_2)}]}{2}$$

$$\hat{\mathbb{Z}}_{56}(\boldsymbol{k}) = \frac{\sqrt{2}\mathbb{X}_{24}[\mathbb{M}_1^{(a,B_1)}(1,1)] \otimes \mathbb{U}_{10}[\mathbb{Q}_1^{(u,B_2)}] \otimes \mathbb{F}_{12}[\mathbb{T}_2^{(k,A_2)}]}{4} + \frac{\sqrt{2}\mathbb{X}_{24}[\mathbb{M}_1^{(a,B_1)}(1,1)] \otimes \mathbb{U}_{11}[\mathbb{T}_0^{(u,A_1)}] \otimes \mathbb{F}_{6}[\mathbb{Q}_1^{(k,B_1)}]}{4}$$
$$+ \frac{\sqrt{2}\mathbb{X}_{24}[\mathbb{M}_1^{(a,B_1)}(1,1)] \otimes \mathbb{U}_{12}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{8}[\mathbb{Q}_2^{(k,A_2)}]}{4} + \frac{\sqrt{2}\mathbb{X}_{24}[\mathbb{M}_1^{(a,B_1)}(1,1)] \otimes \mathbb{U}_{9}[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{10}[\mathbb{T}_1^{(k,B_1)}]}{4}$$
$$+ \frac{\sqrt{2}\mathbb{X}_{29}[\mathbb{M}_1^{(a,B_2)}(1,1)] \otimes \mathbb{U}_{10}[\mathbb{Q}_1^{(u,B_2)}] \otimes \mathbb{F}_{9}[\mathbb{T}_0^{(k,A_1)}]}{4} + \frac{\sqrt{2}\mathbb{X}_{29}[\mathbb{M}_1^{(a,B_2)}(1,1)] \otimes \mathbb{U}_{11}[\mathbb{T}_0^{(u,A_1)}] \otimes \mathbb{F}_{7}[\mathbb{Q}_1^{(k,B_2)}]}{4}$$
$$+ \frac{\sqrt{2}\mathbb{X}_{29}[\mathbb{M}_1^{(a,B_2)}(1,1)] \otimes \mathbb{U}_{12}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{5}[\mathbb{Q}_0^{(k,A_1)}]}{4} + \frac{\sqrt{2}\mathbb{X}_{29}[\mathbb{M}_1^{(a,B_2)}(1,1)] \otimes \mathbb{U}_{9}[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{11}[\mathbb{T}_1^{(k,B_2)}]}{4}$$

No. 57 $\hat{\mathbb{Q}}_2^{(A_1,2)}(1,1)$ $[\mathrm{M}_1, \mathrm{B}_2]$

$$\hat{\mathbb{Z}}_{57} = -\mathbb{X}_{19}[\mathbb{M}_1^{(a,A_2)}(1,1)] \otimes \mathbb{Y}_{16}[\mathbb{T}_2^{(b,A_2)}]$$

$$\hat{\mathbb{Z}}_{57}(\boldsymbol{k}) = -\frac{\mathbb{X}_{19}[\mathbb{M}_1^{(a,A_2)}(1,1)] \otimes \mathbb{U}_{10}[\mathbb{Q}_1^{(u,B_2)}] \otimes \mathbb{F}_{10}[\mathbb{T}_1^{(k,B_1)}]}{2} - \frac{\mathbb{X}_{19}[\mathbb{M}_1^{(a,A_2)}(1,1)] \otimes \mathbb{U}_{11}[\mathbb{T}_0^{(u,A_1)}] \otimes \mathbb{F}_{8}[\mathbb{Q}_2^{(k,A_2)}]}{2}$$
$$- \frac{\mathbb{X}_{19}[\mathbb{M}_1^{(a,A_2)}(1,1)] \otimes \mathbb{U}_{12}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{6}[\mathbb{Q}_1^{(k,B_1)}]}{2} - \frac{\mathbb{X}_{19}[\mathbb{M}_1^{(a,A_2)}(1,1)] \otimes \mathbb{U}_{9}[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{12}[\mathbb{T}_2^{(k,A_2)}]}{2}$$

No. 58 $\hat{\mathbb{Q}}_1^{(A_1)}(1,-1)$ $[\mathrm{M}_1, \mathrm{B}_2]$

$$\hat{\mathbb{Z}}_{58} = -\frac{\sqrt{2}\mathbb{X}_{25}[\mathbb{M}_1^{(a,B_1)}(1,-1)] \otimes \mathbb{Y}_{14}[\mathbb{T}_1^{(b,B_1)}]}{2} + \frac{\sqrt{2}\mathbb{X}_{30}[\mathbb{M}_1^{(a,B_2)}(1,-1)] \otimes \mathbb{Y}_{15}[\mathbb{T}_1^{(b,B_2)}]}{2}$$

$$\hat{\mathbb{Z}}_{58}(\boldsymbol{k}) = -\frac{\sqrt{2}\mathbb{X}_{25}[\mathbb{M}_1^{(a,B_1)}(1,-1)]\otimes\mathbb{U}_{10}[\mathbb{Q}_1^{(u,B_2)}]\otimes\mathbb{F}_{12}[\mathbb{T}_2^{(k,A_2)}]}{4} - \frac{\sqrt{2}\mathbb{X}_{25}[\mathbb{M}_1^{(a,B_1)}(1,-1)]\otimes\mathbb{U}_{11}[\mathbb{T}_0^{(u,A_1)}]\otimes\mathbb{F}_{6}[\mathbb{Q}_1^{(k,B_1)}]}{4}$$
$$- \frac{\sqrt{2}\mathbb{X}_{25}[\mathbb{M}_1^{(a,B_1)}(1,-1)]\otimes\mathbb{U}_{12}[\mathbb{T}_1^{(u,B_2)}]\otimes\mathbb{F}_{8}[\mathbb{Q}_2^{(k,A_2)}]}{4} - \frac{\sqrt{2}\mathbb{X}_{25}[\mathbb{M}_1^{(a,B_1)}(1,-1)]\otimes\mathbb{U}_{9}[\mathbb{Q}_0^{(u,A_1)}]\otimes\mathbb{F}_{10}[\mathbb{T}_1^{(k,B_1)}]}{4}$$
$$+ \frac{\sqrt{2}\mathbb{X}_{30}[\mathbb{M}_1^{(a,B_2)}(1,-1)]\otimes\mathbb{U}_{10}[\mathbb{Q}_1^{(u,B_2)}]\otimes\mathbb{F}_{9}[\mathbb{T}_0^{(k,A_1)}]}{4} + \frac{\sqrt{2}\mathbb{X}_{30}[\mathbb{M}_1^{(a,B_2)}(1,-1)]\otimes\mathbb{U}_{11}[\mathbb{T}_0^{(u,A_1)}]\otimes\mathbb{F}_{7}[\mathbb{Q}_1^{(k,B_2)}]}{4}$$
$$+ \frac{\sqrt{2}\mathbb{X}_{30}[\mathbb{M}_1^{(a,B_2)}(1,-1)]\otimes\mathbb{U}_{12}[\mathbb{T}_1^{(u,B_2)}]\otimes\mathbb{F}_{5}[\mathbb{Q}_0^{(k,A_1)}]}{4} + \frac{\sqrt{2}\mathbb{X}_{30}[\mathbb{M}_1^{(a,B_2)}(1,-1)]\otimes\mathbb{U}_{9}[\mathbb{Q}_0^{(u,A_1)}]\otimes\mathbb{F}_{11}[\mathbb{T}_1^{(k,B_2)}]}{4}$$

No. 59 $\hat{\mathbb{G}}_2^{(A_1)}(1,-1)$ $[\mathrm{M}_1,\mathrm{B}_2]$

$$\hat{\mathbb{Z}}_{59} = \frac{\sqrt{2}\mathbb{X}_{25}[\mathbb{M}_1^{(a,B_1)}(1,-1)]\otimes\mathbb{Y}_{14}[\mathbb{T}_1^{(b,B_1)}]}{2} + \frac{\sqrt{2}\mathbb{X}_{30}[\mathbb{M}_1^{(a,B_2)}(1,-1)]\otimes\mathbb{Y}_{15}[\mathbb{T}_1^{(b,B_2)}]}{2}$$

$$\hat{\mathbb{Z}}_{59}(\boldsymbol{k}) = \frac{\sqrt{2}\mathbb{X}_{25}[\mathbb{M}_1^{(a,B_1)}(1,-1)]\otimes\mathbb{U}_{10}[\mathbb{Q}_1^{(u,B_2)}]\otimes\mathbb{F}_{12}[\mathbb{T}_2^{(k,A_2)}]}{4} + \frac{\sqrt{2}\mathbb{X}_{25}[\mathbb{M}_1^{(a,B_1)}(1,-1)]\otimes\mathbb{U}_{11}[\mathbb{T}_0^{(u,A_1)}]\otimes\mathbb{F}_{6}[\mathbb{Q}_1^{(k,B_1)}]}{4}$$
$$+ \frac{\sqrt{2}\mathbb{X}_{25}[\mathbb{M}_1^{(a,B_1)}(1,-1)]\otimes\mathbb{U}_{12}[\mathbb{T}_1^{(u,B_2)}]\otimes\mathbb{F}_{8}[\mathbb{Q}_2^{(k,A_2)}]}{4} + \frac{\sqrt{2}\mathbb{X}_{25}[\mathbb{M}_1^{(a,B_1)}(1,-1)]\otimes\mathbb{U}_{9}[\mathbb{Q}_0^{(u,A_1)}]\otimes\mathbb{F}_{10}[\mathbb{T}_1^{(k,B_1)}]}{4}$$
$$+ \frac{\sqrt{2}\mathbb{X}_{30}[\mathbb{M}_1^{(a,B_2)}(1,-1)]\otimes\mathbb{U}_{10}[\mathbb{Q}_1^{(u,B_2)}]\otimes\mathbb{F}_{9}[\mathbb{T}_0^{(k,A_1)}]}{4} + \frac{\sqrt{2}\mathbb{X}_{30}[\mathbb{M}_1^{(a,B_2)}(1,-1)]\otimes\mathbb{U}_{11}[\mathbb{T}_0^{(u,A_1)}]\otimes\mathbb{F}_{7}[\mathbb{Q}_1^{(k,B_2)}]}{4}$$
$$+ \frac{\sqrt{2}\mathbb{X}_{30}[\mathbb{M}_1^{(a,B_2)}(1,-1)]\otimes\mathbb{U}_{12}[\mathbb{T}_1^{(u,B_2)}]\otimes\mathbb{F}_{5}[\mathbb{Q}_0^{(k,A_1)}]}{4} + \frac{\sqrt{2}\mathbb{X}_{30}[\mathbb{M}_1^{(a,B_2)}(1,-1)]\otimes\mathbb{U}_{9}[\mathbb{Q}_0^{(u,A_1)}]\otimes\mathbb{F}_{11}[\mathbb{T}_1^{(k,B_2)}]}{4}$$

No. 60 $\hat{\mathbb{Q}}_2^{(A_1,2)}(1,-1)$ $[\mathrm{M}_1,\mathrm{B}_2]$

$$\hat{\mathbb{Z}}_{60} = -\mathbb{X}_{20}[\mathbb{M}_1^{(a,A_2)}(1,-1)]\otimes\mathbb{Y}_{16}[\mathbb{T}_2^{(b,A_2)}]$$

$$\hat{\mathbb{Z}}_{60}(\boldsymbol{k}) = -\frac{\mathbb{X}_{20}[\mathbb{M}_1^{(a,A_2)}(1,-1)]\otimes\mathbb{U}_{10}[\mathbb{Q}_1^{(u,B_2)}]\otimes\mathbb{F}_{10}[\mathbb{T}_1^{(k,B_1)}]}{2} - \frac{\mathbb{X}_{20}[\mathbb{M}_1^{(a,A_2)}(1,-1)]\otimes\mathbb{U}_{11}[\mathbb{T}_0^{(u,A_1)}]\otimes\mathbb{F}_{8}[\mathbb{Q}_2^{(k,A_2)}]}{2}$$
$$- \frac{\mathbb{X}_{20}[\mathbb{M}_1^{(a,A_2)}(1,-1)]\otimes\mathbb{U}_{12}[\mathbb{T}_1^{(u,B_2)}]\otimes\mathbb{F}_{6}[\mathbb{Q}_1^{(k,B_1)}]}{2} - \frac{\mathbb{X}_{20}[\mathbb{M}_1^{(a,A_2)}(1,-1)]\otimes\mathbb{U}_{9}[\mathbb{Q}_0^{(u,A_1)}]\otimes\mathbb{F}_{12}[\mathbb{T}_2^{(k,A_2)}]}{2}$$

No. 61 $\hat{\mathbb{G}}_3^{(A_1)}(1,-1)$ $[\mathrm{M}_1,\mathrm{B}_2]$

$$\hat{\mathbb{Z}}_{61} = \mathbb{X}_{34}[\mathbb{M}_3^{(a,A_1)}(1,-1)]\otimes\mathbb{Y}_{13}[\mathbb{T}_0^{(b,A_1)}]$$

$$\hat{\mathbb{Z}}_{61}(\boldsymbol{k}) = \frac{\mathbb{X}_{34}[\mathbb{M}_3^{(a,A_1)}(1,-1)]\otimes\mathbb{U}_{10}[\mathbb{Q}_1^{(u,B_2)}]\otimes\mathbb{F}_{11}[\mathbb{T}_1^{(k,B_2)}]}{2} + \frac{\mathbb{X}_{34}[\mathbb{M}_3^{(a,A_1)}(1,-1)]\otimes\mathbb{U}_{11}[\mathbb{T}_0^{(u,A_1)}]\otimes\mathbb{F}_{5}[\mathbb{Q}_0^{(k,A_1)}]}{2}$$
$$+ \frac{\mathbb{X}_{34}[\mathbb{M}_3^{(a,A_1)}(1,-1)]\otimes\mathbb{U}_{12}[\mathbb{T}_1^{(u,B_2)}]\otimes\mathbb{F}_{7}[\mathbb{Q}_1^{(k,B_2)}]}{2} + \frac{\mathbb{X}_{34}[\mathbb{M}_3^{(a,A_1)}(1,-1)]\otimes\mathbb{U}_{9}[\mathbb{Q}_0^{(u,A_1)}]\otimes\mathbb{F}_{9}[\mathbb{T}_0^{(k,A_1)}]}{2}$$

No. 62 $\hat{\mathbb{G}}_2^{(A_1)}(1,-1)$ $[\mathrm{M}_1,\mathrm{B}_2]$

$$\hat{\mathbb{Z}}_{62} = -\frac{\sqrt{3}\mathbb{X}_{26}[\mathbb{M}_3^{(a,B_1,1)}(1,-1)]\otimes\mathbb{Y}_{14}[\mathbb{T}_1^{(b,B_1)}]}{4} - \frac{\sqrt{5}\mathbb{X}_{27}[\mathbb{M}_3^{(a,B_1,2)}(1,-1)]\otimes\mathbb{Y}_{14}[\mathbb{T}_1^{(b,B_1)}]}{4}$$
$$- \frac{\sqrt{3}\mathbb{X}_{31}[\mathbb{M}_3^{(a,B_2,1)}(1,-1)]\otimes\mathbb{Y}_{15}[\mathbb{T}_1^{(b,B_2)}]}{4} + \frac{\sqrt{5}\mathbb{X}_{32}[\mathbb{M}_3^{(a,B_2,2)}(1,-1)]\otimes\mathbb{Y}_{15}[\mathbb{T}_1^{(b,B_2)}]}{4}$$

$$\begin{aligned}\hat{\mathbb{Z}}_{62}(\boldsymbol{k}) = &-\frac{\sqrt{3}\mathbb{X}_{26}[\mathbb{M}_3^{(a,B_1,1)}(1,-1)]\otimes\mathbb{U}_{10}[\mathbb{Q}_1^{(u,B_2)}]\otimes\mathbb{F}_{12}[\mathbb{T}_2^{(k,A_2)}]}{8} - \frac{\sqrt{3}\mathbb{X}_{26}[\mathbb{M}_3^{(a,B_1,1)}(1,-1)]\otimes\mathbb{U}_{11}[\mathbb{T}_0^{(u,A_1)}]\otimes\mathbb{F}_6[\mathbb{Q}_1^{(k,B_1)}]}{8}\\
&- \frac{\sqrt{3}\mathbb{X}_{26}[\mathbb{M}_3^{(a,B_1,1)}(1,-1)]\otimes\mathbb{U}_{12}[\mathbb{T}_1^{(u,B_2)}]\otimes\mathbb{F}_8[\mathbb{Q}_2^{(k,A_2)}]}{8} - \frac{\sqrt{3}\mathbb{X}_{26}[\mathbb{M}_3^{(a,B_1,1)}(1,-1)]\otimes\mathbb{U}_9[\mathbb{Q}_0^{(u,A_1)}]\otimes\mathbb{F}_{10}[\mathbb{T}_1^{(k,B_1)}]}{8}\\
&- \frac{\sqrt{5}\mathbb{X}_{27}[\mathbb{M}_3^{(a,B_1,2)}(1,-1)]\otimes\mathbb{U}_{10}[\mathbb{Q}_1^{(u,B_2)}]\otimes\mathbb{F}_{12}[\mathbb{T}_2^{(k,A_2)}]}{8} - \frac{\sqrt{5}\mathbb{X}_{27}[\mathbb{M}_3^{(a,B_1,2)}(1,-1)]\otimes\mathbb{U}_{11}[\mathbb{T}_0^{(u,A_1)}]\otimes\mathbb{F}_6[\mathbb{Q}_1^{(k,B_1)}]}{8}\\
&- \frac{\sqrt{5}\mathbb{X}_{27}[\mathbb{M}_3^{(a,B_1,2)}(1,-1)]\otimes\mathbb{U}_{12}[\mathbb{T}_1^{(u,B_2)}]\otimes\mathbb{F}_8[\mathbb{Q}_2^{(k,A_2)}]}{8} - \frac{\sqrt{5}\mathbb{X}_{27}[\mathbb{M}_3^{(a,B_1,2)}(1,-1)]\otimes\mathbb{U}_9[\mathbb{Q}_0^{(u,A_1)}]\otimes\mathbb{F}_{10}[\mathbb{T}_1^{(k,B_1)}]}{8}\\
&- \frac{\sqrt{3}\mathbb{X}_{31}[\mathbb{M}_3^{(a,B_2,1)}(1,-1)]\otimes\mathbb{U}_{10}[\mathbb{Q}_1^{(u,B_2)}]\otimes\mathbb{F}_9[\mathbb{T}_0^{(k,A_1)}]}{8} - \frac{\sqrt{3}\mathbb{X}_{31}[\mathbb{M}_3^{(a,B_2,1)}(1,-1)]\otimes\mathbb{U}_{11}[\mathbb{T}_0^{(u,A_1)}]\otimes\mathbb{F}_7[\mathbb{Q}_1^{(k,B_2)}]}{8}\\
&- \frac{\sqrt{3}\mathbb{X}_{31}[\mathbb{M}_3^{(a,B_2,1)}(1,-1)]\otimes\mathbb{U}_{12}[\mathbb{T}_1^{(u,B_2)}]\otimes\mathbb{F}_5[\mathbb{Q}_0^{(k,A_1)}]}{8} - \frac{\sqrt{3}\mathbb{X}_{31}[\mathbb{M}_3^{(a,B_2,1)}(1,-1)]\otimes\mathbb{U}_9[\mathbb{Q}_0^{(u,A_1)}]\otimes\mathbb{F}_{11}[\mathbb{T}_1^{(k,B_2)}]}{8}\\
&+ \frac{\sqrt{5}\mathbb{X}_{32}[\mathbb{M}_3^{(a,B_2,2)}(1,-1)]\otimes\mathbb{U}_{10}[\mathbb{Q}_1^{(u,B_2)}]\otimes\mathbb{F}_9[\mathbb{T}_0^{(k,A_1)}]}{8} + \frac{\sqrt{5}\mathbb{X}_{32}[\mathbb{M}_3^{(a,B_2,2)}(1,-1)]\otimes\mathbb{U}_{11}[\mathbb{T}_0^{(u,A_1)}]\otimes\mathbb{F}_7[\mathbb{Q}_1^{(k,B_2)}]}{8}\\
&+ \frac{\sqrt{5}\mathbb{X}_{32}[\mathbb{M}_3^{(a,B_2,2)}(1,-1)]\otimes\mathbb{U}_{12}[\mathbb{T}_1^{(u,B_2)}]\otimes\mathbb{F}_5[\mathbb{Q}_0^{(k,A_1)}]}{8} + \frac{\sqrt{5}\mathbb{X}_{32}[\mathbb{M}_3^{(a,B_2,2)}(1,-1)]\otimes\mathbb{U}_9[\mathbb{Q}_0^{(u,A_1)}]\otimes\mathbb{F}_{11}[\mathbb{T}_1^{(k,B_2)}]}{8}\end{aligned}$$

No. 63 $\hat{\mathbb{Q}}_3^{(A_1,1)}(1,-1)$ $[\mathrm{M}_1,\mathrm{B}_2]$

$$\hat{\mathbb{Z}}_{63} = \frac{\sqrt{3}\mathbb{X}_{26}[\mathbb{M}_3^{(a,B_1,1)}(1,-1)]\otimes\mathbb{Y}_{14}[\mathbb{T}_1^{(b,B_1)}]}{4} - \frac{\sqrt{5}\mathbb{X}_{27}[\mathbb{M}_3^{(a,B_1,2)}(1,-1)]\otimes\mathbb{Y}_{14}[\mathbb{T}_1^{(b,B_1)}]}{4}$$
$$- \frac{\sqrt{3}\mathbb{X}_{31}[\mathbb{M}_3^{(a,B_2,1)}(1,-1)]\otimes\mathbb{Y}_{15}[\mathbb{T}_1^{(b,B_2)}]}{4} - \frac{\sqrt{5}\mathbb{X}_{32}[\mathbb{M}_3^{(a,B_2,2)}(1,-1)]\otimes\mathbb{Y}_{15}[\mathbb{T}_1^{(b,B_2)}]}{4}$$

$$\hat{\mathbb{Z}}_{63}(\boldsymbol{k}) = \frac{\sqrt{3}\mathbb{X}_{26}[\mathbb{M}_3^{(a,B_1,1)}(1,-1)]\otimes\mathbb{U}_{10}[\mathbb{Q}_1^{(u,B_2)}]\otimes\mathbb{F}_{12}[\mathbb{T}_2^{(k,A_2)}]}{8} + \frac{\sqrt{3}\mathbb{X}_{26}[\mathbb{M}_3^{(a,B_1,1)}(1,-1)]\otimes\mathbb{U}_{11}[\mathbb{T}_0^{(u,A_1)}]\otimes\mathbb{F}_6[\mathbb{Q}_1^{(k,B_1)}]}{8}$$
$$+ \frac{\sqrt{3}\mathbb{X}_{26}[\mathbb{M}_3^{(a,B_1,1)}(1,-1)]\otimes\mathbb{U}_{12}[\mathbb{T}_1^{(u,B_2)}]\otimes\mathbb{F}_8[\mathbb{Q}_2^{(k,A_2)}]}{8} + \frac{\sqrt{3}\mathbb{X}_{26}[\mathbb{M}_3^{(a,B_1,1)}(1,-1)]\otimes\mathbb{U}_9[\mathbb{Q}_0^{(u,A_1)}]\otimes\mathbb{F}_{10}[\mathbb{T}_1^{(k,B_1)}]}{8}$$
$$- \frac{\sqrt{5}\mathbb{X}_{27}[\mathbb{M}_3^{(a,B_1,2)}(1,-1)]\otimes\mathbb{U}_{10}[\mathbb{Q}_1^{(u,B_2)}]\otimes\mathbb{F}_{12}[\mathbb{T}_2^{(k,A_2)}]}{8} - \frac{\sqrt{5}\mathbb{X}_{27}[\mathbb{M}_3^{(a,B_1,2)}(1,-1)]\otimes\mathbb{U}_{11}[\mathbb{T}_0^{(u,A_1)}]\otimes\mathbb{F}_6[\mathbb{Q}_1^{(k,B_1)}]}{8}$$
$$- \frac{\sqrt{5}\mathbb{X}_{27}[\mathbb{M}_3^{(a,B_1,2)}(1,-1)]\otimes\mathbb{U}_{12}[\mathbb{T}_1^{(u,B_2)}]\otimes\mathbb{F}_8[\mathbb{Q}_2^{(k,A_2)}]}{8} - \frac{\sqrt{5}\mathbb{X}_{27}[\mathbb{M}_3^{(a,B_1,2)}(1,-1)]\otimes\mathbb{U}_9[\mathbb{Q}_0^{(u,A_1)}]\otimes\mathbb{F}_{10}[\mathbb{T}_1^{(k,B_1)}]}{8}$$
$$- \frac{\sqrt{3}\mathbb{X}_{31}[\mathbb{M}_3^{(a,B_2,1)}(1,-1)]\otimes\mathbb{U}_{10}[\mathbb{Q}_1^{(u,B_2)}]\otimes\mathbb{F}_9[\mathbb{T}_0^{(k,A_1)}]}{8} - \frac{\sqrt{3}\mathbb{X}_{31}[\mathbb{M}_3^{(a,B_2,1)}(1,-1)]\otimes\mathbb{U}_{11}[\mathbb{T}_0^{(u,A_1)}]\otimes\mathbb{F}_7[\mathbb{Q}_1^{(k,B_2)}]}{8}$$
$$- \frac{\sqrt{3}\mathbb{X}_{31}[\mathbb{M}_3^{(a,B_2,1)}(1,-1)]\otimes\mathbb{U}_{12}[\mathbb{T}_1^{(u,B_2)}]\otimes\mathbb{F}_5[\mathbb{Q}_0^{(k,A_1)}]}{8} - \frac{\sqrt{3}\mathbb{X}_{31}[\mathbb{M}_3^{(a,B_2,1)}(1,-1)]\otimes\mathbb{U}_9[\mathbb{Q}_0^{(u,A_1)}]\otimes\mathbb{F}_{11}[\mathbb{T}_1^{(k,B_2)}]}{8}$$
$$- \frac{\sqrt{5}\mathbb{X}_{32}[\mathbb{M}_3^{(a,B_2,2)}(1,-1)]\otimes\mathbb{U}_{10}[\mathbb{Q}_1^{(u,B_2)}]\otimes\mathbb{F}_9[\mathbb{T}_0^{(k,A_1)}]}{8} - \frac{\sqrt{5}\mathbb{X}_{32}[\mathbb{M}_3^{(a,B_2,2)}(1,-1)]\otimes\mathbb{U}_{11}[\mathbb{T}_0^{(u,A_1)}]\otimes\mathbb{F}_7[\mathbb{Q}_1^{(k,B_2)}]}{8}$$
$$- \frac{\sqrt{5}\mathbb{X}_{32}[\mathbb{M}_3^{(a,B_2,2)}(1,-1)]\otimes\mathbb{U}_{12}[\mathbb{T}_1^{(u,B_2)}]\otimes\mathbb{F}_5[\mathbb{Q}_0^{(k,A_1)}]}{8} - \frac{\sqrt{5}\mathbb{X}_{32}[\mathbb{M}_3^{(a,B_2,2)}(1,-1)]\otimes\mathbb{U}_9[\mathbb{Q}_0^{(u,A_1)}]\otimes\mathbb{F}_{11}[\mathbb{T}_1^{(k,B_2)}]}{8}$$

No. 64 $\hat{\mathbb{Q}}_3^{(A_1,2)}(1,-1)$ $[\mathrm{M}_1,\mathrm{B}_2]$

$$\hat{\mathbb{Z}}_{64} = \frac{\sqrt{5}\mathbb{X}_{26}[\mathbb{M}_3^{(a,B_1,1)}(1,-1)]\otimes\mathbb{Y}_{14}[\mathbb{T}_1^{(b,B_1)}]}{4} - \frac{\sqrt{3}\mathbb{X}_{27}[\mathbb{M}_3^{(a,B_1,2)}(1,-1)]\otimes\mathbb{Y}_{14}[\mathbb{T}_1^{(b,B_1)}]}{4}$$
$$+ \frac{\sqrt{5}\mathbb{X}_{31}[\mathbb{M}_3^{(a,B_2,1)}(1,-1)]\otimes\mathbb{Y}_{15}[\mathbb{T}_1^{(b,B_2)}]}{4} + \frac{\sqrt{3}\mathbb{X}_{32}[\mathbb{M}_3^{(a,B_2,2)}(1,-1)]\otimes\mathbb{Y}_{15}[\mathbb{T}_1^{(b,B_2)}]}{4}$$

$$\hat{\mathbb{Z}}_{64}(\boldsymbol{k}) = \frac{\sqrt{5}\mathbb{X}_{26}[\mathbb{M}_3^{(a,B_1,1)}(1,-1)]\otimes\mathbb{U}_{10}[\mathbb{Q}_1^{(u,B_2)}]\otimes\mathbb{F}_{12}[\mathbb{T}_2^{(k,A_2)}]}{8} + \frac{\sqrt{5}\mathbb{X}_{26}[\mathbb{M}_3^{(a,B_1,1)}(1,-1)]\otimes\mathbb{U}_{11}[\mathbb{T}_0^{(u,A_1)}]\otimes\mathbb{F}_6[\mathbb{Q}_1^{(k,B_1)}]}{8}$$
$$+ \frac{\sqrt{5}\mathbb{X}_{26}[\mathbb{M}_3^{(a,B_1,1)}(1,-1)]\otimes\mathbb{U}_{12}[\mathbb{T}_1^{(u,B_2)}]\otimes\mathbb{F}_8[\mathbb{Q}_2^{(k,A_2)}]}{8} + \frac{\sqrt{5}\mathbb{X}_{26}[\mathbb{M}_3^{(a,B_1,1)}(1,-1)]\otimes\mathbb{U}_9[\mathbb{Q}_0^{(u,A_1)}]\otimes\mathbb{F}_{10}[\mathbb{T}_1^{(k,B_1)}]}{8}$$
$$- \frac{\sqrt{3}\mathbb{X}_{27}[\mathbb{M}_3^{(a,B_1,2)}(1,-1)]\otimes\mathbb{U}_{10}[\mathbb{Q}_1^{(u,B_2)}]\otimes\mathbb{F}_{12}[\mathbb{T}_2^{(k,A_2)}]}{8} - \frac{\sqrt{3}\mathbb{X}_{27}[\mathbb{M}_3^{(a,B_1,2)}(1,-1)]\otimes\mathbb{U}_{11}[\mathbb{T}_0^{(u,A_1)}]\otimes\mathbb{F}_6[\mathbb{Q}_1^{(k,B_1)}]}{8}$$
$$- \frac{\sqrt{3}\mathbb{X}_{27}[\mathbb{M}_3^{(a,B_1,2)}(1,-1)]\otimes\mathbb{U}_{12}[\mathbb{T}_1^{(u,B_2)}]\otimes\mathbb{F}_8[\mathbb{Q}_2^{(k,A_2)}]}{8} - \frac{\sqrt{3}\mathbb{X}_{27}[\mathbb{M}_3^{(a,B_1,2)}(1,-1)]\otimes\mathbb{U}_9[\mathbb{Q}_0^{(u,A_1)}]\otimes\mathbb{F}_{10}[\mathbb{T}_1^{(k,B_1)}]}{8}$$
$$+ \frac{\sqrt{5}\mathbb{X}_{31}[\mathbb{M}_3^{(a,B_2,1)}(1,-1)]\otimes\mathbb{U}_{10}[\mathbb{Q}_1^{(u,B_2)}]\otimes\mathbb{F}_9[\mathbb{T}_0^{(k,A_1)}]}{8} + \frac{\sqrt{5}\mathbb{X}_{31}[\mathbb{M}_3^{(a,B_2,1)}(1,-1)]\otimes\mathbb{U}_{11}[\mathbb{T}_0^{(u,A_1)}]\otimes\mathbb{F}_7[\mathbb{Q}_1^{(k,B_2)}]}{8}$$
$$+ \frac{\sqrt{5}\mathbb{X}_{31}[\mathbb{M}_3^{(a,B_2,1)}(1,-1)]\otimes\mathbb{U}_{12}[\mathbb{T}_1^{(u,B_2)}]\otimes\mathbb{F}_5[\mathbb{Q}_0^{(k,A_1)}]}{8} + \frac{\sqrt{5}\mathbb{X}_{31}[\mathbb{M}_3^{(a,B_2,1)}(1,-1)]\otimes\mathbb{U}_9[\mathbb{Q}_0^{(u,A_1)}]\otimes\mathbb{F}_{11}[\mathbb{T}_1^{(k,B_2)}]}{8}$$
$$+ \frac{\sqrt{3}\mathbb{X}_{32}[\mathbb{M}_3^{(a,B_2,2)}(1,-1)]\otimes\mathbb{U}_{10}[\mathbb{Q}_1^{(u,B_2)}]\otimes\mathbb{F}_9[\mathbb{T}_0^{(k,A_1)}]}{8} + \frac{\sqrt{3}\mathbb{X}_{32}[\mathbb{M}_3^{(a,B_2,2)}(1,-1)]\otimes\mathbb{U}_{11}[\mathbb{T}_0^{(u,A_1)}]\otimes\mathbb{F}_7[\mathbb{Q}_1^{(k,B_2)}]}{8}$$
$$+ \frac{\sqrt{3}\mathbb{X}_{32}[\mathbb{M}_3^{(a,B_2,2)}(1,-1)]\otimes\mathbb{U}_{12}[\mathbb{T}_1^{(u,B_2)}]\otimes\mathbb{F}_5[\mathbb{Q}_0^{(k,A_1)}]}{8} + \frac{\sqrt{3}\mathbb{X}_{32}[\mathbb{M}_3^{(a,B_2,2)}(1,-1)]\otimes\mathbb{U}_9[\mathbb{Q}_0^{(u,A_1)}]\otimes\mathbb{F}_{11}[\mathbb{T}_1^{(k,B_2)}]}{8}$$

No. 65 $\hat{\mathbb{G}}_4^{(A_1,1)}(1,-1)$ $[\mathrm{M}_1,\mathrm{B}_2]$

$$\hat{\mathbb{Z}}_{65} = -\frac{\sqrt{5}\mathbb{X}_{26}[\mathbb{M}_3^{(a,B_1,1)}(1,-1)]\otimes\mathbb{Y}_{14}[\mathbb{T}_1^{(b,B_1)}]}{4} - \frac{\sqrt{3}\mathbb{X}_{27}[\mathbb{M}_3^{(a,B_1,2)}(1,-1)]\otimes\mathbb{Y}_{14}[\mathbb{T}_1^{(b,B_1)}]}{4} + \frac{\sqrt{5}\mathbb{X}_{31}[\mathbb{M}_3^{(a,B_2,1)}(1,-1)]\otimes\mathbb{Y}_{15}[\mathbb{T}_1^{(b,B_2)}]}{4} - \frac{\sqrt{3}\mathbb{X}_{32}[\mathbb{M}_3^{(a,B_2,2)}(1,-1)]\otimes\mathbb{Y}_{15}[\mathbb{T}_1^{(b,B_2)}]}{4}$$

$$\begin{aligned}\hat{\mathbb{Z}}_{65}(\boldsymbol{k}) = &-\frac{\sqrt{5}\mathbb{X}_{26}[\mathbb{M}_3^{(a,B_1,1)}(1,-1)]\otimes\mathbb{U}_{10}[\mathbb{Q}_1^{(u,B_2)}]\otimes\mathbb{F}_{12}[\mathbb{T}_2^{(k,A_2)}]}{8} - \frac{\sqrt{5}\mathbb{X}_{26}[\mathbb{M}_3^{(a,B_1,1)}(1,-1)]\otimes\mathbb{U}_{11}[\mathbb{T}_0^{(u,A_1)}]\otimes\mathbb{F}_6[\mathbb{Q}_1^{(k,B_1)}]}{8}\\ &-\frac{\sqrt{5}\mathbb{X}_{26}[\mathbb{M}_3^{(a,B_1,1)}(1,-1)]\otimes\mathbb{U}_{12}[\mathbb{T}_1^{(u,B_2)}]\otimes\mathbb{F}_8[\mathbb{Q}_2^{(k,A_2)}]}{8} - \frac{\sqrt{5}\mathbb{X}_{26}[\mathbb{M}_3^{(a,B_1,1)}(1,-1)]\otimes\mathbb{U}_9[\mathbb{Q}_0^{(u,A_1)}]\otimes\mathbb{F}_{10}[\mathbb{T}_1^{(k,B_1)}]}{8}\\ &-\frac{\sqrt{3}\mathbb{X}_{27}[\mathbb{M}_3^{(a,B_1,2)}(1,-1)]\otimes\mathbb{U}_{10}[\mathbb{Q}_1^{(u,B_2)}]\otimes\mathbb{F}_{12}[\mathbb{T}_2^{(k,A_2)}]}{8} - \frac{\sqrt{3}\mathbb{X}_{27}[\mathbb{M}_3^{(a,B_1,2)}(1,-1)]\otimes\mathbb{U}_{11}[\mathbb{T}_0^{(u,A_1)}]\otimes\mathbb{F}_6[\mathbb{Q}_1^{(k,B_1)}]}{8}\\ &-\frac{\sqrt{3}\mathbb{X}_{27}[\mathbb{M}_3^{(a,B_1,2)}(1,-1)]\otimes\mathbb{U}_{12}[\mathbb{T}_1^{(u,B_2)}]\otimes\mathbb{F}_8[\mathbb{Q}_2^{(k,A_2)}]}{8} - \frac{\sqrt{3}\mathbb{X}_{27}[\mathbb{M}_3^{(a,B_1,2)}(1,-1)]\otimes\mathbb{U}_9[\mathbb{Q}_0^{(u,A_1)}]\otimes\mathbb{F}_{10}[\mathbb{T}_1^{(k,B_1)}]}{8}\\ &+\frac{\sqrt{5}\mathbb{X}_{31}[\mathbb{M}_3^{(a,B_2,1)}(1,-1)]\otimes\mathbb{U}_{10}[\mathbb{Q}_1^{(u,B_2)}]\otimes\mathbb{F}_9[\mathbb{T}_0^{(k,A_1)}]}{8} + \frac{\sqrt{5}\mathbb{X}_{31}[\mathbb{M}_3^{(a,B_2,1)}(1,-1)]\otimes\mathbb{U}_{11}[\mathbb{T}_0^{(u,A_1)}]\otimes\mathbb{F}_7[\mathbb{Q}_1^{(k,B_2)}]}{8}\\ &+\frac{\sqrt{5}\mathbb{X}_{31}[\mathbb{M}_3^{(a,B_2,1)}(1,-1)]\otimes\mathbb{U}_{12}[\mathbb{T}_1^{(u,B_2)}]\otimes\mathbb{F}_5[\mathbb{Q}_0^{(k,A_1)}]}{8} + \frac{\sqrt{5}\mathbb{X}_{31}[\mathbb{M}_3^{(a,B_2,1)}(1,-1)]\otimes\mathbb{U}_9[\mathbb{Q}_0^{(u,A_1)}]\otimes\mathbb{F}_{11}[\mathbb{T}_1^{(k,B_2)}]}{8}\\ &-\frac{\sqrt{3}\mathbb{X}_{32}[\mathbb{M}_3^{(a,B_2,2)}(1,-1)]\otimes\mathbb{U}_{10}[\mathbb{Q}_1^{(u,B_2)}]\otimes\mathbb{F}_9[\mathbb{T}_0^{(k,A_1)}]}{8} - \frac{\sqrt{3}\mathbb{X}_{32}[\mathbb{M}_3^{(a,B_2,2)}(1,-1)]\otimes\mathbb{U}_{11}[\mathbb{T}_0^{(u,A_1)}]\otimes\mathbb{F}_7[\mathbb{Q}_1^{(k,B_2)}]}{8}\\ &-\frac{\sqrt{3}\mathbb{X}_{32}[\mathbb{M}_3^{(a,B_2,2)}(1,-1)]\otimes\mathbb{U}_{12}[\mathbb{T}_1^{(u,B_2)}]\otimes\mathbb{F}_5[\mathbb{Q}_0^{(k,A_1)}]}{8} - \frac{\sqrt{3}\mathbb{X}_{32}[\mathbb{M}_3^{(a,B_2,2)}(1,-1)]\otimes\mathbb{U}_9[\mathbb{Q}_0^{(u,A_1)}]\otimes\mathbb{F}_{11}[\mathbb{T}_1^{(k,B_2)}]}{8}\end{aligned}$$

No. 66 $\hat{\mathbb{Q}}_2^{(A_1,1)}(1,-1)$ $[\mathrm{M}_1,\mathrm{B}_2]$

$$\hat{\mathbb{Z}}_{66} = \mathbb{X}_{22}[\mathbb{M}_3^{(a,A_2,2)}(1,-1)]\otimes\mathbb{Y}_{16}[\mathbb{T}_2^{(b,A_2)}]$$

$$\begin{aligned}\hat{\mathbb{Z}}_{66}(\boldsymbol{k}) = &\frac{\mathbb{X}_{22}[\mathbb{M}_3^{(a,A_2,2)}(1,-1)]\otimes\mathbb{U}_{10}[\mathbb{Q}_1^{(u,B_2)}]\otimes\mathbb{F}_{10}[\mathbb{T}_1^{(k,B_1)}]}{2} + \frac{\mathbb{X}_{22}[\mathbb{M}_3^{(a,A_2,2)}(1,-1)]\otimes\mathbb{U}_{11}[\mathbb{T}_0^{(u,A_1)}]\otimes\mathbb{F}_8[\mathbb{Q}_2^{(k,A_2)}]}{2}\\ &+\frac{\mathbb{X}_{22}[\mathbb{M}_3^{(a,A_2,2)}(1,-1)]\otimes\mathbb{U}_{12}[\mathbb{T}_1^{(u,B_2)}]\otimes\mathbb{F}_6[\mathbb{Q}_1^{(k,B_1)}]}{2} + \frac{\mathbb{X}_{22}[\mathbb{M}_3^{(a,A_2,2)}(1,-1)]\otimes\mathbb{U}_9[\mathbb{Q}_0^{(u,A_1)}]\otimes\mathbb{F}_{12}[\mathbb{T}_2^{(k,A_2)}]}{2}\end{aligned}$$

No. 67 $\hat{\mathbb{Q}}_2^{(A_1,2)}(1,-1)$ $[\mathrm{M}_1,\mathrm{B}_2]$

$$\hat{\mathbb{Z}}_{67} = \mathbb{X}_{21}[\mathbb{M}_3^{(a,A_2,1)}(1,-1)]\otimes\mathbb{Y}_{16}[\mathbb{T}_2^{(b,A_2)}]$$

$$\hat{\mathbb{Z}}_{67}(\boldsymbol{k}) = \frac{\mathbb{X}_{21}[\mathbb{M}_3^{(a,A_2,1)}(1,-1)] \otimes \mathbb{U}_{10}[\mathbb{Q}_1^{(u,B_2)}] \otimes \mathbb{F}_{10}[\mathbb{T}_1^{(k,B_1)}]}{2} + \frac{\mathbb{X}_{21}[\mathbb{M}_3^{(a,A_2,1)}(1,-1)] \otimes \mathbb{U}_{11}[\mathbb{T}_0^{(u,A_1)}] \otimes \mathbb{F}_8[\mathbb{Q}_2^{(k,A_2)}]}{2}$$
$$+ \frac{\mathbb{X}_{21}[\mathbb{M}_3^{(a,A_2,1)}(1,-1)] \otimes \mathbb{U}_{12}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_6[\mathbb{Q}_1^{(k,B_1)}]}{2} + \frac{\mathbb{X}_{21}[\mathbb{M}_3^{(a,A_2,1)}(1,-1)] \otimes \mathbb{U}_9[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{12}[\mathbb{T}_2^{(k,A_2)}]}{2}$$

No. 68 $\hat{\mathbb{Q}}_2^{(A_1,1)}(1,0)$ $[\mathrm{M}_1, \mathrm{B}_2]$

$$\hat{\mathbb{Z}}_{68} = \mathbb{X}_{35}[\mathbb{T}_2^{(a,A_1,1)}(1,0)] \otimes \mathbb{Y}_{13}[\mathbb{T}_0^{(b,A_1)}]$$

$$\hat{\mathbb{Z}}_{68}(\boldsymbol{k}) = \frac{\mathbb{X}_{35}[\mathbb{T}_2^{(a,A_1,1)}(1,0)] \otimes \mathbb{U}_{10}[\mathbb{Q}_1^{(u,B_2)}] \otimes \mathbb{F}_{11}[\mathbb{T}_1^{(k,B_2)}]}{2} + \frac{\mathbb{X}_{35}[\mathbb{T}_2^{(a,A_1,1)}(1,0)] \otimes \mathbb{U}_{11}[\mathbb{T}_0^{(u,A_1)}] \otimes \mathbb{F}_5[\mathbb{Q}_0^{(k,A_1)}]}{2}$$
$$+ \frac{\mathbb{X}_{35}[\mathbb{T}_2^{(a,A_1,1)}(1,0)] \otimes \mathbb{U}_{12}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_7[\mathbb{Q}_1^{(k,B_2)}]}{2} + \frac{\mathbb{X}_{35}[\mathbb{T}_2^{(a,A_1,1)}(1,0)] \otimes \mathbb{U}_9[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_9[\mathbb{T}_0^{(k,A_1)}]}{2}$$

No. 69 $\hat{\mathbb{Q}}_2^{(A_1,2)}(1,0)$ $[\mathrm{M}_1, \mathrm{B}_2]$

$$\hat{\mathbb{Z}}_{69} = \mathbb{X}_{36}[\mathbb{T}_2^{(a,A_1,2)}(1,0)] \otimes \mathbb{Y}_{13}[\mathbb{T}_0^{(b,A_1)}]$$

$$\hat{\mathbb{Z}}_{69}(\boldsymbol{k}) = \frac{\mathbb{X}_{36}[\mathbb{T}_2^{(a,A_1,2)}(1,0)] \otimes \mathbb{U}_{10}[\mathbb{Q}_1^{(u,B_2)}] \otimes \mathbb{F}_{11}[\mathbb{T}_1^{(k,B_2)}]}{2} + \frac{\mathbb{X}_{36}[\mathbb{T}_2^{(a,A_1,2)}(1,0)] \otimes \mathbb{U}_{11}[\mathbb{T}_0^{(u,A_1)}] \otimes \mathbb{F}_5[\mathbb{Q}_0^{(k,A_1)}]}{2}$$
$$+ \frac{\mathbb{X}_{36}[\mathbb{T}_2^{(a,A_1,2)}(1,0)] \otimes \mathbb{U}_{12}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_7[\mathbb{Q}_1^{(k,B_2)}]}{2} + \frac{\mathbb{X}_{36}[\mathbb{T}_2^{(a,A_1,2)}(1,0)] \otimes \mathbb{U}_9[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_9[\mathbb{T}_0^{(k,A_1)}]}{2}$$

No. 70 $\hat{\mathbb{Q}}_1^{(A_1)}(1,0)$ $[\mathrm{M}_1, \mathrm{B}_2]$

$$\hat{\mathbb{Z}}_{70} = \frac{\sqrt{2}\mathbb{X}_{28}[\mathbb{T}_2^{(a,B_1)}(1,0)] \otimes \mathbb{Y}_{14}[\mathbb{T}_1^{(b,B_1)}]}{2} + \frac{\sqrt{2}\mathbb{X}_{33}[\mathbb{T}_2^{(a,B_2)}(1,0)] \otimes \mathbb{Y}_{15}[\mathbb{T}_1^{(b,B_2)}]}{2}$$

$$\hat{\mathbb{Z}}_{70}(\boldsymbol{k}) = \frac{\sqrt{2}\mathbb{X}_{28}[\mathbb{T}_2^{(a,B_1)}(1,0)] \otimes \mathbb{U}_{10}[\mathbb{Q}_1^{(u,B_2)}] \otimes \mathbb{F}_{12}[\mathbb{T}_2^{(k,A_2)}]}{4} + \frac{\sqrt{2}\mathbb{X}_{28}[\mathbb{T}_2^{(a,B_1)}(1,0)] \otimes \mathbb{U}_{11}[\mathbb{T}_0^{(u,A_1)}] \otimes \mathbb{F}_6[\mathbb{Q}_1^{(k,B_1)}]}{4} + \frac{\sqrt{2}\mathbb{X}_{28}[\mathbb{T}_2^{(a,B_1)}(1,0)] \otimes \mathbb{U}_{12}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_8[\mathbb{Q}_2^{(k,A_2)}]}{4}$$
$$+ \frac{\sqrt{2}\mathbb{X}_{28}[\mathbb{T}_2^{(a,B_1)}(1,0)] \otimes \mathbb{U}_9[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{10}[\mathbb{T}_1^{(k,B_1)}]}{4} + \frac{\sqrt{2}\mathbb{X}_{33}[\mathbb{T}_2^{(a,B_2)}(1,0)] \otimes \mathbb{U}_{10}[\mathbb{Q}_1^{(u,B_2)}] \otimes \mathbb{F}_9[\mathbb{T}_0^{(k,A_1)}]}{4} + \frac{\sqrt{2}\mathbb{X}_{33}[\mathbb{T}_2^{(a,B_2)}(1,0)] \otimes \mathbb{U}_{11}[\mathbb{T}_0^{(u,A_1)}] \otimes \mathbb{F}_7[\mathbb{Q}_1^{(k,B_2)}]}{4}$$
$$+ \frac{\sqrt{2}\mathbb{X}_{33}[\mathbb{T}_2^{(a,B_2)}(1,0)] \otimes \mathbb{U}_{12}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_5[\mathbb{Q}_0^{(k,A_1)}]}{4} + \frac{\sqrt{2}\mathbb{X}_{33}[\mathbb{T}_2^{(a,B_2)}(1,0)] \otimes \mathbb{U}_9[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{11}[\mathbb{T}_1^{(k,B_2)}]}{4}$$

No. 71 $\hat{\mathbb{G}}_2^{(A_1)}(1,0)$ $[\mathrm{M}_1, \mathrm{B}_2]$

$$\hat{\mathbb{Z}}_{71} = \frac{\sqrt{2}\mathbb{X}_{28}[\mathbb{T}_2^{(a,B_1)}(1,0)] \otimes \mathbb{Y}_{14}[\mathbb{T}_1^{(b,B_1)}]}{2} - \frac{\sqrt{2}\mathbb{X}_{33}[\mathbb{T}_2^{(a,B_2)}(1,0)] \otimes \mathbb{Y}_{15}[\mathbb{T}_1^{(b,B_2)}]}{2}$$

$$\hat{\mathbb{Z}}_{71}(\boldsymbol{k}) = \frac{\sqrt{2}\mathbb{X}_{28}[\mathbb{T}_2^{(a,B_1)}(1,0)] \otimes \mathbb{U}_{10}[\mathbb{Q}_1^{(u,B_2)}] \otimes \mathbb{F}_{12}[\mathbb{T}_2^{(k,A_2)}]}{4} + \frac{\sqrt{2}\mathbb{X}_{28}[\mathbb{T}_2^{(a,B_1)}(1,0)] \otimes \mathbb{U}_{11}[\mathbb{T}_0^{(u,A_1)}] \otimes \mathbb{F}_6[\mathbb{Q}_1^{(k,B_1)}]}{4} + \frac{\sqrt{2}\mathbb{X}_{28}[\mathbb{T}_2^{(a,B_1)}(1,0)] \otimes \mathbb{U}_{12}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_8[\mathbb{Q}_2^{(k,A_2)}]}{4}$$
$$+ \frac{\sqrt{2}\mathbb{X}_{28}[\mathbb{T}_2^{(a,B_1)}(1,0)] \otimes \mathbb{U}_9[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{10}[\mathbb{T}_1^{(k,B_1)}]}{4} - \frac{\sqrt{2}\mathbb{X}_{33}[\mathbb{T}_2^{(a,B_2)}(1,0)] \otimes \mathbb{U}_{10}[\mathbb{Q}_1^{(u,B_2)}] \otimes \mathbb{F}_9[\mathbb{T}_0^{(k,A_1)}]}{4} - \frac{\sqrt{2}\mathbb{X}_{33}[\mathbb{T}_2^{(a,B_2)}(1,0)] \otimes \mathbb{U}_{11}[\mathbb{T}_0^{(u,A_1)}] \otimes \mathbb{F}_7[\mathbb{Q}_1^{(k,B_2)}]}{4}$$
$$- \frac{\sqrt{2}\mathbb{X}_{33}[\mathbb{T}_2^{(a,B_2)}(1,0)] \otimes \mathbb{U}_{12}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_5[\mathbb{Q}_0^{(k,A_1)}]}{4} - \frac{\sqrt{2}\mathbb{X}_{33}[\mathbb{T}_2^{(a,B_2)}(1,0)] \otimes \mathbb{U}_9[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{11}[\mathbb{T}_1^{(k,B_2)}]}{4}$$

No. 72 $\hat{\mathbb{Q}}_0^{(A_1)}(1,0)$ $[\mathrm{M}_1, \mathrm{B}_2]$

$$\hat{\mathbb{Z}}_{72} = \mathbb{X}_{23}[\mathbb{T}_2^{(a,A_2)}(1,0)] \otimes \mathbb{Y}_{16}[\mathbb{T}_2^{(b,A_2)}]$$

$$\hat{\mathbb{Z}}_{72}(\boldsymbol{k}) = \frac{\mathbb{X}_{23}[\mathbb{T}_2^{(a,A_2)}(1,0)] \otimes \mathbb{U}_{10}[\mathbb{Q}_1^{(u,B_2)}] \otimes \mathbb{F}_{10}[\mathbb{T}_1^{(k,B_1)}]}{2} + \frac{\mathbb{X}_{23}[\mathbb{T}_2^{(a,A_2)}(1,0)] \otimes \mathbb{U}_{11}[\mathbb{T}_0^{(u,A_1)}] \otimes \mathbb{F}_8[\mathbb{Q}_2^{(k,A_2)}]}{2}$$
$$+ \frac{\mathbb{X}_{23}[\mathbb{T}_2^{(a,A_2)}(1,0)] \otimes \mathbb{U}_{12}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_6[\mathbb{Q}_1^{(k,B_1)}]}{2} + \frac{\mathbb{X}_{23}[\mathbb{T}_2^{(a,A_2)}(1,0)] \otimes \mathbb{U}_9[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{12}[\mathbb{T}_2^{(k,A_2)}]}{2}$$

No. 73 $\hat{\mathbb{Q}}_0^{(A_1)}$ $[\mathrm{M}_1, \mathrm{B}_3]$

$$\hat{\mathbb{Z}}_{73} = \mathbb{X}_1[\mathbb{Q}_0^{(a,A_1)}] \otimes \mathbb{Y}_{17}[\mathbb{Q}_0^{(b,A_1)}]$$

$$\hat{\mathbb{Z}}_{73}(\boldsymbol{k}) = \frac{\sqrt{2}\mathbb{X}_1[\mathbb{Q}_0^{(a,A_1)}] \otimes \mathbb{U}_{13}[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{13}[\mathbb{Q}_0^{(k,A_1)}]}{2} - \frac{\sqrt{2}\mathbb{X}_1[\mathbb{Q}_0^{(a,A_1)}] \otimes \mathbb{U}_{14}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{19}[\mathbb{T}_1^{(k,B_2)}]}{2}$$

No. 74 $\hat{\mathbb{Q}}_2^{(A_1,1)}$ $[\mathrm{M}_1, \mathrm{B}_3]$

$$\hat{\mathbb{Z}}_{74} = \mathbb{X}_2[\mathbb{Q}_2^{(a,A_1,1)}] \otimes \mathbb{Y}_{17}[\mathbb{Q}_0^{(b,A_1)}]$$

$$\hat{\mathbb{Z}}_{74}(\boldsymbol{k}) = \frac{\sqrt{2}\mathbb{X}_2[\mathbb{Q}_2^{(a,A_1,1)}] \otimes \mathbb{U}_{13}[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{13}[\mathbb{Q}_0^{(k,A_1)}]}{2} - \frac{\sqrt{2}\mathbb{X}_2[\mathbb{Q}_2^{(a,A_1,1)}] \otimes \mathbb{U}_{14}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{19}[\mathbb{T}_1^{(k,B_2)}]}{2}$$

No. 75 $\hat{\mathbb{Q}}_2^{(A_1,2)}$ $[\mathrm{M}_1, \mathrm{B}_3]$

$$\hat{\mathbb{Z}}_{75} = \mathbb{X}_3[\mathbb{Q}_2^{(a,A_1,2)}] \otimes \mathbb{Y}_{17}[\mathbb{Q}_0^{(b,A_1)}]$$

$$\hat{\mathbb{Z}}_{75}(\boldsymbol{k}) = \frac{\sqrt{2}\mathbb{X}_3[\mathbb{Q}_2^{(a,A_1,2)}] \otimes \mathbb{U}_{13}[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{13}[\mathbb{Q}_0^{(k,A_1)}]}{2} - \frac{\sqrt{2}\mathbb{X}_3[\mathbb{Q}_2^{(a,A_1,2)}] \otimes \mathbb{U}_{14}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{19}[\mathbb{T}_1^{(k,B_2)}]}{2}$$

No. 76 $\hat{\mathbb{Q}}_1^{(A_1)}$ $[\mathrm{M}_1, \mathrm{B}_3]$

$$\hat{\mathbb{Z}}_{76} = \frac{\sqrt{2}\mathbb{X}_8[\mathbb{Q}_2^{(a,B_1)}] \otimes \mathbb{Y}_{18}[\mathbb{Q}_1^{(b,B_1)}]}{2} + \frac{\sqrt{2}\mathbb{X}_9[\mathbb{Q}_2^{(a,B_2)}] \otimes \mathbb{Y}_{19}[\mathbb{Q}_1^{(b,B_2)}]}{2}$$

$$\begin{aligned}\hat{\mathbb{Z}}_{76}(\boldsymbol{k}) = &\frac{\mathbb{X}_8[\mathbb{Q}_2^{(a,B_1)}] \otimes \mathbb{U}_{13}[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{14}[\mathbb{Q}_1^{(k,B_1)}]}{2} - \frac{\mathbb{X}_8[\mathbb{Q}_2^{(a,B_1)}] \otimes \mathbb{U}_{14}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{20}[\mathbb{T}_2^{(k,A_2)}]}{2} \\ &+ \frac{\mathbb{X}_9[\mathbb{Q}_2^{(a,B_2)}] \otimes \mathbb{U}_{13}[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{15}[\mathbb{Q}_1^{(k,B_2)}]}{2} - \frac{\mathbb{X}_9[\mathbb{Q}_2^{(a,B_2)}] \otimes \mathbb{U}_{14}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{17}[\mathbb{T}_0^{(k,A_1)}]}{2}\end{aligned}$$

No. 77 $\hat{\mathbb{G}}_2^{(A_1)}$ $[\mathrm{M}_1, \mathrm{B}_3]$

$$\hat{\mathbb{Z}}_{77} = \frac{\sqrt{2}\mathbb{X}_8[\mathbb{Q}_2^{(a,B_1)}] \otimes \mathbb{Y}_{18}[\mathbb{Q}_1^{(b,B_1)}]}{2} - \frac{\sqrt{2}\mathbb{X}_9[\mathbb{Q}_2^{(a,B_2)}] \otimes \mathbb{Y}_{19}[\mathbb{Q}_1^{(b,B_2)}]}{2}$$

$$\begin{aligned}\hat{\mathbb{Z}}_{77}(\boldsymbol{k}) = &\frac{\mathbb{X}_8[\mathbb{Q}_2^{(a,B_1)}] \otimes \mathbb{U}_{13}[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{14}[\mathbb{Q}_1^{(k,B_1)}]}{2} - \frac{\mathbb{X}_8[\mathbb{Q}_2^{(a,B_1)}] \otimes \mathbb{U}_{14}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{20}[\mathbb{T}_2^{(k,A_2)}]}{2} \\ &- \frac{\mathbb{X}_9[\mathbb{Q}_2^{(a,B_2)}] \otimes \mathbb{U}_{13}[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{15}[\mathbb{Q}_1^{(k,B_2)}]}{2} + \frac{\mathbb{X}_9[\mathbb{Q}_2^{(a,B_2)}] \otimes \mathbb{U}_{14}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{17}[\mathbb{T}_0^{(k,A_1)}]}{2}\end{aligned}$$

No. 78 $\hat{\mathbb{Q}}_0^{(A_1)}$ $[\mathrm{M}_1, \mathrm{B}_3]$

$$\hat{\mathbb{Z}}_{78} = \mathbb{X}_7[\mathbb{Q}_2^{(a,A_2)}] \otimes \mathbb{Y}_{20}[\mathbb{Q}_2^{(b,A_2)}]$$

$$\hat{\mathbb{Z}}_{78}(\boldsymbol{k}) = \frac{\sqrt{2}\mathbb{X}_7[\mathbb{Q}_2^{(a,A_2)}] \otimes \mathbb{U}_{13}[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{16}[\mathbb{Q}_2^{(k,A_2)}]}{2} - \frac{\sqrt{2}\mathbb{X}_7[\mathbb{Q}_2^{(a,A_2)}] \otimes \mathbb{U}_{14}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{18}[\mathbb{T}_1^{(k,B_1)}]}{2}$$

No. 79 $\hat{\mathbb{Q}}_0^{(A_1)}(1,1)$ $[\mathrm{M}_1, \mathrm{B}_3]$

$$\hat{\mathbb{Z}}_{79} = \mathbb{X}_4[\mathbb{Q}_0^{(a,A_1)}(1,1)] \otimes \mathbb{Y}_{17}[\mathbb{Q}_0^{(b,A_1)}]$$

$$\hat{\mathbb{Z}}_{79}(\boldsymbol{k}) = \frac{\sqrt{2}\mathbb{X}_4[\mathbb{Q}_0^{(a,A_1)}(1,1)] \otimes \mathbb{U}_{13}[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{13}[\mathbb{Q}_0^{(k,A_1)}]}{2} - \frac{\sqrt{2}\mathbb{X}_4[\mathbb{Q}_0^{(a,A_1)}(1,1)] \otimes \mathbb{U}_{14}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{19}[\mathbb{T}_1^{(k,B_2)}]}{2}$$

No. 80 $\hat{\mathbb{Q}}_2^{(A_1,1)}(1,-1)$ $[\mathrm{M}_1, \mathrm{B}_3]$

$$\hat{\mathbb{Z}}_{80} = \mathbb{X}_5[\mathbb{Q}_2^{(a,A_1,1)}(1,-1)] \otimes \mathbb{Y}_{17}[\mathbb{Q}_0^{(b,A_1)}]$$

$$\hat{\mathbb{Z}}_{80}(\boldsymbol{k}) = \frac{\sqrt{2}\mathbb{X}_5[\mathbb{Q}_2^{(a,A_1,1)}(1,-1)] \otimes \mathbb{U}_{13}[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{13}[\mathbb{Q}_0^{(k,A_1)}]}{2} - \frac{\sqrt{2}\mathbb{X}_5[\mathbb{Q}_2^{(a,A_1,1)}(1,-1)] \otimes \mathbb{U}_{14}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{19}[\mathbb{T}_1^{(k,B_2)}]}{2}$$

No. 81 $\hat{\mathbb{Q}}_2^{(A_1,2)}(1,-1)$ $[\mathrm{M}_1, \mathrm{B}_3]$

$$\hat{\mathbb{Z}}_{81} = \mathbb{X}_6[\mathbb{Q}_2^{(a,A_1,2)}(1,-1)] \otimes \mathbb{Y}_{17}[\mathbb{Q}_0^{(b,A_1)}]$$

$$\hat{\mathbb{Z}}_{81}(\boldsymbol{k}) = \frac{\sqrt{2}\mathbb{X}_6[\mathbb{Q}_2^{(a,A_1,2)}(1,-1)] \otimes \mathbb{U}_{13}[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{13}[\mathbb{Q}_0^{(k,A_1)}]}{2} - \frac{\sqrt{2}\mathbb{X}_6[\mathbb{Q}_2^{(a,A_1,2)}(1,-1)] \otimes \mathbb{U}_{14}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{19}[\mathbb{T}_1^{(k,B_2)}]}{2}$$

No. 82 $\hat{\mathbb{Q}}_1^{(A_1)}(1,-1)$ $[\mathrm{M}_1, \mathrm{B}_3]$

$$\hat{\mathbb{Z}}_{82} = \frac{\sqrt{2}\mathbb{X}_{12}[\mathbb{Q}_2^{(a,B_1)}(1,-1)] \otimes \mathbb{Y}_{18}[\mathbb{Q}_1^{(b,B_1)}]}{2} + \frac{\sqrt{2}\mathbb{X}_{14}[\mathbb{Q}_2^{(a,B_2)}(1,-1)] \otimes \mathbb{Y}_{19}[\mathbb{Q}_1^{(b,B_2)}]}{2}$$

$$\begin{aligned}\hat{\mathbb{Z}}_{82}(\boldsymbol{k}) = {} & \frac{\mathbb{X}_{12}[\mathbb{Q}_2^{(a,B_1)}(1,-1)] \otimes \mathbb{U}_{13}[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{14}[\mathbb{Q}_1^{(k,B_1)}]}{2} - \frac{\mathbb{X}_{12}[\mathbb{Q}_2^{(a,B_1)}(1,-1)] \otimes \mathbb{U}_{14}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{20}[\mathbb{T}_2^{(k,A_2)}]}{2} \\ & + \frac{\mathbb{X}_{14}[\mathbb{Q}_2^{(a,B_2)}(1,-1)] \otimes \mathbb{U}_{13}[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{15}[\mathbb{Q}_1^{(k,B_2)}]}{2} - \frac{\mathbb{X}_{14}[\mathbb{Q}_2^{(a,B_2)}(1,-1)] \otimes \mathbb{U}_{14}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{17}[\mathbb{T}_0^{(k,A_1)}]}{2}\end{aligned}$$

No. 83 $\hat{\mathbb{G}}_2^{(A_1)}(1,-1)$ $[\mathrm{M}_1, \mathrm{B}_3]$

$$\hat{\mathbb{Z}}_{83} = \frac{\sqrt{2}\mathbb{X}_{12}[\mathbb{Q}_2^{(a,B_1)}(1,-1)] \otimes \mathbb{Y}_{18}[\mathbb{Q}_1^{(b,B_1)}]}{2} - \frac{\sqrt{2}\mathbb{X}_{14}[\mathbb{Q}_2^{(a,B_2)}(1,-1)] \otimes \mathbb{Y}_{19}[\mathbb{Q}_1^{(b,B_2)}]}{2}$$

$$\begin{aligned}\hat{\mathbb{Z}}_{83}(\boldsymbol{k}) = {} & \frac{\mathbb{X}_{12}[\mathbb{Q}_2^{(a,B_1)}(1,-1)] \otimes \mathbb{U}_{13}[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{14}[\mathbb{Q}_1^{(k,B_1)}]}{2} - \frac{\mathbb{X}_{12}[\mathbb{Q}_2^{(a,B_1)}(1,-1)] \otimes \mathbb{U}_{14}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{20}[\mathbb{T}_2^{(k,A_2)}]}{2} \\ & - \frac{\mathbb{X}_{14}[\mathbb{Q}_2^{(a,B_2)}(1,-1)] \otimes \mathbb{U}_{13}[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{15}[\mathbb{Q}_1^{(k,B_2)}]}{2} + \frac{\mathbb{X}_{14}[\mathbb{Q}_2^{(a,B_2)}(1,-1)] \otimes \mathbb{U}_{14}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{17}[\mathbb{T}_0^{(k,A_1)}]}{2}\end{aligned}$$

No. 84 $\hat{\mathbb{Q}}_0^{(A_1)}(1,-1)$ $[\mathrm{M}_1, \mathrm{B}_3]$

$$\hat{\mathbb{Z}}_{84} = \mathbb{X}_{10}[\mathbb{Q}_2^{(a,A_2)}(1,-1)] \otimes \mathbb{Y}_{20}[\mathbb{Q}_2^{(b,A_2)}]$$

$$\hat{\mathbb{Z}}_{84}(\boldsymbol{k}) = \frac{\sqrt{2}\mathbb{X}_{10}[\mathbb{Q}_2^{(a,A_2)}(1,-1)] \otimes \mathbb{U}_{13}[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{16}[\mathbb{Q}_2^{(k,A_2)}]}{2} - \frac{\sqrt{2}\mathbb{X}_{10}[\mathbb{Q}_2^{(a,A_2)}(1,-1)] \otimes \mathbb{U}_{14}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{18}[\mathbb{T}_1^{(k,B_1)}]}{2}$$

No. 85 $\hat{\mathbb{Q}}_1^{(A_1)}(1,0)$ $[\mathrm{M}_1, \mathrm{B}_3]$

$$\hat{\mathbb{Z}}_{85} = -\frac{\sqrt{2}\mathbb{X}_{13}[\mathbb{G}_1^{(a,B_1)}(1,0)] \otimes \mathbb{Y}_{18}[\mathbb{Q}_1^{(b,B_1)}]}{2} + \frac{\sqrt{2}\mathbb{X}_{15}[\mathbb{G}_1^{(a,B_2)}(1,0)] \otimes \mathbb{Y}_{19}[\mathbb{Q}_1^{(b,B_2)}]}{2}$$

$$\begin{aligned}\hat{\mathbb{Z}}_{85}(\boldsymbol{k}) = &-\frac{\mathbb{X}_{13}[\mathbb{G}_1^{(a,B_1)}(1,0)] \otimes \mathbb{U}_{13}[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{14}[\mathbb{Q}_1^{(k,B_1)}]}{2} + \frac{\mathbb{X}_{13}[\mathbb{G}_1^{(a,B_1)}(1,0)] \otimes \mathbb{U}_{14}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{20}[\mathbb{T}_2^{(k,A_2)}]}{2} \\ &+ \frac{\mathbb{X}_{15}[\mathbb{G}_1^{(a,B_2)}(1,0)] \otimes \mathbb{U}_{13}[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{15}[\mathbb{Q}_1^{(k,B_2)}]}{2} - \frac{\mathbb{X}_{15}[\mathbb{G}_1^{(a,B_2)}(1,0)] \otimes \mathbb{U}_{14}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{17}[\mathbb{T}_0^{(k,A_1)}]}{2}\end{aligned}$$

No. 86 $\hat{\mathbb{G}}_2^{(A_1)}(1,0)$ $[\mathrm{M}_1, \mathrm{B}_3]$

$$\hat{\mathbb{Z}}_{86} = \frac{\sqrt{2}\mathbb{X}_{13}[\mathbb{G}_1^{(a,B_1)}(1,0)] \otimes \mathbb{Y}_{18}[\mathbb{Q}_1^{(b,B_1)}]}{2} + \frac{\sqrt{2}\mathbb{X}_{15}[\mathbb{G}_1^{(a,B_2)}(1,0)] \otimes \mathbb{Y}_{19}[\mathbb{Q}_1^{(b,B_2)}]}{2}$$

$$\begin{aligned}\hat{\mathbb{Z}}_{86}(\boldsymbol{k}) = &\frac{\mathbb{X}_{13}[\mathbb{G}_1^{(a,B_1)}(1,0)] \otimes \mathbb{U}_{13}[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{14}[\mathbb{Q}_1^{(k,B_1)}]}{2} - \frac{\mathbb{X}_{13}[\mathbb{G}_1^{(a,B_1)}(1,0)] \otimes \mathbb{U}_{14}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{20}[\mathbb{T}_2^{(k,A_2)}]}{2} \\ &+ \frac{\mathbb{X}_{15}[\mathbb{G}_1^{(a,B_2)}(1,0)] \otimes \mathbb{U}_{13}[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{15}[\mathbb{Q}_1^{(k,B_2)}]}{2} - \frac{\mathbb{X}_{15}[\mathbb{G}_1^{(a,B_2)}(1,0)] \otimes \mathbb{U}_{14}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{17}[\mathbb{T}_0^{(k,A_1)}]}{2}\end{aligned}$$

No. 87 $\hat{\mathbb{Q}}_2^{(A_1,2)}(1,0)$ $[\mathrm{M}_1, \mathrm{B}_3]$

$$\hat{\mathbb{Z}}_{87} = -\mathbb{X}_{11}[\mathbb{G}_1^{(a,A_2)}(1,0)] \otimes \mathbb{Y}_{20}[\mathbb{Q}_2^{(b,A_2)}]$$

$$\hat{\mathbb{Z}}_{87}(\boldsymbol{k}) = -\frac{\sqrt{2}\mathbb{X}_{11}[\mathbb{G}_1^{(a,A_2)}(1,0)] \otimes \mathbb{U}_{13}[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{16}[\mathbb{Q}_2^{(k,A_2)}]}{2} + \frac{\sqrt{2}\mathbb{X}_{11}[\mathbb{G}_1^{(a,A_2)}(1,0)] \otimes \mathbb{U}_{14}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{18}[\mathbb{T}_1^{(k,B_1)}]}{2}$$

No. 88 $\hat{\mathbb{Q}}_1^{(A_1)}$ $[\mathrm{M}_1, \mathrm{B}_3]$

$$\hat{\mathbb{Z}}_{88} = -\frac{\sqrt{2}\mathbb{X}_{17}[\mathbb{M}_1^{(a,B_1)}] \otimes \mathbb{Y}_{22}[\mathbb{T}_1^{(b,B_1)}]}{2} + \frac{\sqrt{2}\mathbb{X}_{18}[\mathbb{M}_1^{(a,B_2)}] \otimes \mathbb{Y}_{23}[\mathbb{T}_1^{(b,B_2)}]}{2}$$

$$\begin{aligned}\hat{\mathbb{Z}}_{88}(\boldsymbol{k}) = &-\frac{\mathbb{X}_{17}[\mathbb{M}_1^{(a,B_1)}] \otimes \mathbb{U}_{13}[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{18}[\mathbb{T}_1^{(k,B_1)}]}{2} - \frac{\mathbb{X}_{17}[\mathbb{M}_1^{(a,B_1)}] \otimes \mathbb{U}_{14}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{16}[\mathbb{Q}_2^{(k,A_2)}]}{2} \\ &+ \frac{\mathbb{X}_{18}[\mathbb{M}_1^{(a,B_2)}] \otimes \mathbb{U}_{13}[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{19}[\mathbb{T}_1^{(k,B_2)}]}{2} + \frac{\mathbb{X}_{18}[\mathbb{M}_1^{(a,B_2)}] \otimes \mathbb{U}_{14}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{13}[\mathbb{Q}_0^{(k,A_1)}]}{2}\end{aligned}$$

No. 89 $\hat{\mathbb{G}}_2^{(A_1)}$ $[\mathrm{M}_1, \mathrm{B}_3]$

$$\hat{\mathbb{Z}}_{89} = \frac{\sqrt{2}\mathbb{X}_{17}[\mathbb{M}_1^{(a,B_1)}] \otimes \mathbb{Y}_{22}[\mathbb{T}_1^{(b,B_1)}]}{2} + \frac{\sqrt{2}\mathbb{X}_{18}[\mathbb{M}_1^{(a,B_2)}] \otimes \mathbb{Y}_{23}[\mathbb{T}_1^{(b,B_2)}]}{2}$$

$$\begin{aligned}\hat{\mathbb{Z}}_{89}(\boldsymbol{k}) = &\frac{\mathbb{X}_{17}[\mathbb{M}_1^{(a,B_1)}] \otimes \mathbb{U}_{13}[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{18}[\mathbb{T}_1^{(k,B_1)}]}{2} + \frac{\mathbb{X}_{17}[\mathbb{M}_1^{(a,B_1)}] \otimes \mathbb{U}_{14}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{16}[\mathbb{Q}_2^{(k,A_2)}]}{2} \\ &+ \frac{\mathbb{X}_{18}[\mathbb{M}_1^{(a,B_2)}] \otimes \mathbb{U}_{13}[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{19}[\mathbb{T}_1^{(k,B_2)}]}{2} + \frac{\mathbb{X}_{18}[\mathbb{M}_1^{(a,B_2)}] \otimes \mathbb{U}_{14}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{13}[\mathbb{Q}_0^{(k,A_1)}]}{2}\end{aligned}$$

No. 90 $\hat{\mathbb{Q}}_2^{(A_1,2)}$ $[\mathrm{M}_1, \mathrm{B}_3]$

$$\hat{\mathbb{Z}}_{90} = -\mathbb{X}_{16}[\mathbb{M}_1^{(a,A_2)}] \otimes \mathbb{Y}_{24}[\mathbb{T}_2^{(b,A_2)}]$$

$$\hat{\mathbb{Z}}_{90}(\boldsymbol{k}) = -\frac{\sqrt{2}\mathbb{X}_{16}[\mathbb{M}_1^{(a,A_2)}] \otimes \mathbb{U}_{13}[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{20}[\mathbb{T}_2^{(k,A_2)}]}{2} - \frac{\sqrt{2}\mathbb{X}_{16}[\mathbb{M}_1^{(a,A_2)}] \otimes \mathbb{U}_{14}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{14}[\mathbb{Q}_1^{(k,B_1)}]}{2}$$

No. 91 $\hat{\mathbb{Q}}_1^{(A_1)}(1,1)$ $[\mathrm{M}_1, \mathrm{B}_3]$

$$\hat{\mathbb{Z}}_{91} = -\frac{\sqrt{2}\mathbb{X}_{24}[\mathbb{M}_1^{(a,B_1)}(1,1)] \otimes \mathbb{Y}_{22}[\mathbb{T}_1^{(b,B_1)}]}{2} + \frac{\sqrt{2}\mathbb{X}_{29}[\mathbb{M}_1^{(a,B_2)}(1,1)] \otimes \mathbb{Y}_{23}[\mathbb{T}_1^{(b,B_2)}]}{2}$$

$$\begin{aligned}\hat{\mathbb{Z}}_{91}(\boldsymbol{k}) = &-\frac{\mathbb{X}_{24}[\mathbb{M}_1^{(a,B_1)}(1,1)] \otimes \mathbb{U}_{13}[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{18}[\mathbb{T}_1^{(k,B_1)}]}{2} - \frac{\mathbb{X}_{24}[\mathbb{M}_1^{(a,B_1)}(1,1)] \otimes \mathbb{U}_{14}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{16}[\mathbb{Q}_2^{(k,A_2)}]}{2} \\ &+ \frac{\mathbb{X}_{29}[\mathbb{M}_1^{(a,B_2)}(1,1)] \otimes \mathbb{U}_{13}[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{19}[\mathbb{T}_1^{(k,B_2)}]}{2} + \frac{\mathbb{X}_{29}[\mathbb{M}_1^{(a,B_2)}(1,1)] \otimes \mathbb{U}_{14}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{13}[\mathbb{Q}_0^{(k,A_1)}]}{2}\end{aligned}$$

No. 92 $\hat{\mathbb{G}}_2^{(A_1)}(1,1)$ $[\mathrm{M}_1, \mathrm{B}_3]$

$$\hat{\mathbb{Z}}_{92} = \frac{\sqrt{2}\mathbb{X}_{24}[\mathbb{M}_1^{(a,B_1)}(1,1)] \otimes \mathbb{Y}_{22}[\mathbb{T}_1^{(b,B_1)}]}{2} + \frac{\sqrt{2}\mathbb{X}_{29}[\mathbb{M}_1^{(a,B_2)}(1,1)] \otimes \mathbb{Y}_{23}[\mathbb{T}_1^{(b,B_2)}]}{2}$$

$$\begin{aligned}\hat{\mathbb{Z}}_{92}(\boldsymbol{k}) = &\frac{\mathbb{X}_{24}[\mathbb{M}_1^{(a,B_1)}(1,1)] \otimes \mathbb{U}_{13}[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{18}[\mathbb{T}_1^{(k,B_1)}]}{2} + \frac{\mathbb{X}_{24}[\mathbb{M}_1^{(a,B_1)}(1,1)] \otimes \mathbb{U}_{14}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{16}[\mathbb{Q}_2^{(k,A_2)}]}{2} \\ &+ \frac{\mathbb{X}_{29}[\mathbb{M}_1^{(a,B_2)}(1,1)] \otimes \mathbb{U}_{13}[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{19}[\mathbb{T}_1^{(k,B_2)}]}{2} + \frac{\mathbb{X}_{29}[\mathbb{M}_1^{(a,B_2)}(1,1)] \otimes \mathbb{U}_{14}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{13}[\mathbb{Q}_0^{(k,A_1)}]}{2}\end{aligned}$$

No. 93 $\hat{\mathbb{Q}}_2^{(A_1,2)}(1,1)$ $[\mathrm{M}_1, \mathrm{B}_3]$

$$\hat{\mathbb{Z}}_{93} = -\mathbb{X}_{19}[\mathbb{M}_1^{(a,A_2)}(1,1)] \otimes \mathbb{Y}_{24}[\mathbb{T}_2^{(b,A_2)}]$$

$$\hat{\mathbb{Z}}_{93}(\boldsymbol{k}) = -\frac{\sqrt{2}\mathbb{X}_{19}[\mathbb{M}_1^{(a,A_2)}(1,1)] \otimes \mathbb{U}_{13}[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{20}[\mathbb{T}_2^{(k,A_2)}]}{2} - \frac{\sqrt{2}\mathbb{X}_{19}[\mathbb{M}_1^{(a,A_2)}(1,1)] \otimes \mathbb{U}_{14}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{14}[\mathbb{Q}_1^{(k,B_1)}]}{2}$$

No. 94 $\hat{\mathbb{Q}}_1^{(A_1)}(1,-1)$ $[\mathrm{M}_1, \mathrm{B}_3]$

$$\hat{\mathbb{Z}}_{94} = -\frac{\sqrt{2}\mathbb{X}_{25}[\mathbb{M}_1^{(a,B_1)}(1,-1)] \otimes \mathbb{Y}_{22}[\mathbb{T}_1^{(b,B_1)}]}{2} + \frac{\sqrt{2}\mathbb{X}_{30}[\mathbb{M}_1^{(a,B_2)}(1,-1)] \otimes \mathbb{Y}_{23}[\mathbb{T}_1^{(b,B_2)}]}{2}$$

$$\begin{aligned}\hat{\mathbb{Z}}_{94}(\boldsymbol{k}) = &-\frac{\mathbb{X}_{25}[\mathbb{M}_1^{(a,B_1)}(1,-1)] \otimes \mathbb{U}_{13}[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{18}[\mathbb{T}_1^{(k,B_1)}]}{2} - \frac{\mathbb{X}_{25}[\mathbb{M}_1^{(a,B_1)}(1,-1)] \otimes \mathbb{U}_{14}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{16}[\mathbb{Q}_2^{(k,A_2)}]}{2} \\ &+ \frac{\mathbb{X}_{30}[\mathbb{M}_1^{(a,B_2)}(1,-1)] \otimes \mathbb{U}_{13}[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{19}[\mathbb{T}_1^{(k,B_2)}]}{2} + \frac{\mathbb{X}_{30}[\mathbb{M}_1^{(a,B_2)}(1,-1)] \otimes \mathbb{U}_{14}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{13}[\mathbb{Q}_0^{(k,A_1)}]}{2}\end{aligned}$$

No. 95 $\hat{\mathbb{G}}_2^{(A_1)}(1,-1)$ $[\mathrm{M}_1, \mathrm{B}_3]$

$$\hat{\mathbb{Z}}_{95} = \frac{\sqrt{2}\mathbb{X}_{25}[\mathbb{M}_1^{(a,B_1)}(1,-1)] \otimes \mathbb{Y}_{22}[\mathbb{T}_1^{(b,B_1)}]}{2} + \frac{\sqrt{2}\mathbb{X}_{30}[\mathbb{M}_1^{(a,B_2)}(1,-1)] \otimes \mathbb{Y}_{23}[\mathbb{T}_1^{(b,B_2)}]}{2}$$

$$\begin{aligned}\hat{\mathbb{Z}}_{95}(\boldsymbol{k}) = &\frac{\mathbb{X}_{25}[\mathbb{M}_1^{(a,B_1)}(1,-1)] \otimes \mathbb{U}_{13}[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{18}[\mathbb{T}_1^{(k,B_1)}]}{2} + \frac{\mathbb{X}_{25}[\mathbb{M}_1^{(a,B_1)}(1,-1)] \otimes \mathbb{U}_{14}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{16}[\mathbb{Q}_2^{(k,A_2)}]}{2} \\ &+ \frac{\mathbb{X}_{30}[\mathbb{M}_1^{(a,B_2)}(1,-1)] \otimes \mathbb{U}_{13}[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{19}[\mathbb{T}_1^{(k,B_2)}]}{2} + \frac{\mathbb{X}_{30}[\mathbb{M}_1^{(a,B_2)}(1,-1)] \otimes \mathbb{U}_{14}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{13}[\mathbb{Q}_0^{(k,A_1)}]}{2}\end{aligned}$$

No. 96 $\hat{\mathbb{Q}}_2^{(A_1,2)}(1,-1)$ $[\mathrm{M}_1, \mathrm{B}_3]$

$$\hat{\mathbb{Z}}_{96} = -\mathbb{X}_{20}[\mathbb{M}_1^{(a,A_2)}(1,-1)] \otimes \mathbb{Y}_{24}[\mathbb{T}_2^{(b,A_2)}]$$

$$\hat{\mathbb{Z}}_{96}(\boldsymbol{k}) = -\frac{\sqrt{2}\mathbb{X}_{20}[\mathbb{M}_1^{(a,A_2)}(1,-1)] \otimes \mathbb{U}_{13}[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{20}[\mathbb{T}_2^{(k,A_2)}]}{2} - \frac{\sqrt{2}\mathbb{X}_{20}[\mathbb{M}_1^{(a,A_2)}(1,-1)] \otimes \mathbb{U}_{14}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{14}[\mathbb{Q}_1^{(k,B_1)}]}{2}$$

No. 97 $\hat{\mathbb{G}}_3^{(A_1)}(1,-1)$ $[\mathrm{M}_1, \mathrm{B}_3]$

$$\hat{\mathbb{Z}}_{97} = \mathbb{X}_{34}[\mathbb{M}_3^{(a,A_1)}(1,-1)] \otimes \mathbb{Y}_{21}[\mathbb{T}_0^{(b,A_1)}]$$

$$\hat{\mathbb{Z}}_{97}(\boldsymbol{k}) = \frac{\sqrt{2}\mathbb{X}_{34}[\mathbb{M}_3^{(a,A_1)}(1,-1)] \otimes \mathbb{U}_{13}[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{17}[\mathbb{T}_0^{(k,A_1)}]}{2} + \frac{\sqrt{2}\mathbb{X}_{34}[\mathbb{M}_3^{(a,A_1)}(1,-1)] \otimes \mathbb{U}_{14}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{15}[\mathbb{Q}_1^{(k,B_2)}]}{2}$$

No. 98 $\hat{\mathbb{G}}_2^{(A_1)}(1,-1)$ $[\mathrm{M}_1, \mathrm{B}_3]$

$$\hat{\mathbb{Z}}_{98} = -\frac{\sqrt{3}\mathbb{X}_{26}[\mathbb{M}_3^{(a,B_1,1)}(1,-1)] \otimes \mathbb{Y}_{22}[\mathbb{T}_1^{(b,B_1)}]}{4} - \frac{\sqrt{5}\mathbb{X}_{27}[\mathbb{M}_3^{(a,B_1,2)}(1,-1)] \otimes \mathbb{Y}_{22}[\mathbb{T}_1^{(b,B_1)}]}{4}$$
$$- \frac{\sqrt{3}\mathbb{X}_{31}[\mathbb{M}_3^{(a,B_2,1)}(1,-1)] \otimes \mathbb{Y}_{23}[\mathbb{T}_1^{(b,B_2)}]}{4} + \frac{\sqrt{5}\mathbb{X}_{32}[\mathbb{M}_3^{(a,B_2,2)}(1,-1)] \otimes \mathbb{Y}_{23}[\mathbb{T}_1^{(b,B_2)}]}{4}$$

$$\hat{\mathbb{Z}}_{98}(\boldsymbol{k}) = -\frac{\sqrt{6}\mathbb{X}_{26}[\mathbb{M}_3^{(a,B_1,1)}(1,-1)] \otimes \mathbb{U}_{13}[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{18}[\mathbb{T}_1^{(k,B_1)}]}{8} - \frac{\sqrt{6}\mathbb{X}_{26}[\mathbb{M}_3^{(a,B_1,1)}(1,-1)] \otimes \mathbb{U}_{14}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{16}[\mathbb{Q}_2^{(k,A_2)}]}{8}$$
$$- \frac{\sqrt{10}\mathbb{X}_{27}[\mathbb{M}_3^{(a,B_1,2)}(1,-1)] \otimes \mathbb{U}_{13}[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{18}[\mathbb{T}_1^{(k,B_1)}]}{8} - \frac{\sqrt{10}\mathbb{X}_{27}[\mathbb{M}_3^{(a,B_1,2)}(1,-1)] \otimes \mathbb{U}_{14}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{16}[\mathbb{Q}_2^{(k,A_2)}]}{8}$$
$$- \frac{\sqrt{6}\mathbb{X}_{31}[\mathbb{M}_3^{(a,B_2,1)}(1,-1)] \otimes \mathbb{U}_{13}[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{19}[\mathbb{T}_1^{(k,B_2)}]}{8} - \frac{\sqrt{6}\mathbb{X}_{31}[\mathbb{M}_3^{(a,B_2,1)}(1,-1)] \otimes \mathbb{U}_{14}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{13}[\mathbb{Q}_0^{(k,A_1)}]}{8}$$
$$+ \frac{\sqrt{10}\mathbb{X}_{32}[\mathbb{M}_3^{(a,B_2,2)}(1,-1)] \otimes \mathbb{U}_{13}[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{19}[\mathbb{T}_1^{(k,B_2)}]}{8} + \frac{\sqrt{10}\mathbb{X}_{32}[\mathbb{M}_3^{(a,B_2,2)}(1,-1)] \otimes \mathbb{U}_{14}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{13}[\mathbb{Q}_0^{(k,A_1)}]}{8}$$

No. 99 $\hat{\mathbb{Q}}_3^{(A_1,1)}(1,-1)$ $[\mathrm{M}_1, \mathrm{B}_3]$

$$\hat{\mathbb{Z}}_{99} = \frac{\sqrt{3}\mathbb{X}_{26}[\mathbb{M}_3^{(a,B_1,1)}(1,-1)] \otimes \mathbb{Y}_{22}[\mathbb{T}_1^{(b,B_1)}]}{4} - \frac{\sqrt{5}\mathbb{X}_{27}[\mathbb{M}_3^{(a,B_1,2)}(1,-1)] \otimes \mathbb{Y}_{22}[\mathbb{T}_1^{(b,B_1)}]}{4}$$
$$- \frac{\sqrt{3}\mathbb{X}_{31}[\mathbb{M}_3^{(a,B_2,1)}(1,-1)] \otimes \mathbb{Y}_{23}[\mathbb{T}_1^{(b,B_2)}]}{4} - \frac{\sqrt{5}\mathbb{X}_{32}[\mathbb{M}_3^{(a,B_2,2)}(1,-1)] \otimes \mathbb{Y}_{23}[\mathbb{T}_1^{(b,B_2)}]}{4}$$

$$\hat{\mathbb{Z}}_{99}(\boldsymbol{k}) = \frac{\sqrt{6}\mathbb{X}_{26}[\mathbb{M}_3^{(a,B_1,1)}(1,-1)] \otimes \mathbb{U}_{13}[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{18}[\mathbb{T}_1^{(k,B_1)}]}{8} + \frac{\sqrt{6}\mathbb{X}_{26}[\mathbb{M}_3^{(a,B_1,1)}(1,-1)] \otimes \mathbb{U}_{14}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{16}[\mathbb{Q}_2^{(k,A_2)}]}{8}$$
$$- \frac{\sqrt{10}\mathbb{X}_{27}[\mathbb{M}_3^{(a,B_1,2)}(1,-1)] \otimes \mathbb{U}_{13}[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{18}[\mathbb{T}_1^{(k,B_1)}]}{8} - \frac{\sqrt{10}\mathbb{X}_{27}[\mathbb{M}_3^{(a,B_1,2)}(1,-1)] \otimes \mathbb{U}_{14}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{16}[\mathbb{Q}_2^{(k,A_2)}]}{8}$$
$$- \frac{\sqrt{6}\mathbb{X}_{31}[\mathbb{M}_3^{(a,B_2,1)}(1,-1)] \otimes \mathbb{U}_{13}[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{19}[\mathbb{T}_1^{(k,B_2)}]}{8} - \frac{\sqrt{6}\mathbb{X}_{31}[\mathbb{M}_3^{(a,B_2,1)}(1,-1)] \otimes \mathbb{U}_{14}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{13}[\mathbb{Q}_0^{(k,A_1)}]}{8}$$
$$- \frac{\sqrt{10}\mathbb{X}_{32}[\mathbb{M}_3^{(a,B_2,2)}(1,-1)] \otimes \mathbb{U}_{13}[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{19}[\mathbb{T}_1^{(k,B_2)}]}{8} - \frac{\sqrt{10}\mathbb{X}_{32}[\mathbb{M}_3^{(a,B_2,2)}(1,-1)] \otimes \mathbb{U}_{14}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{13}[\mathbb{Q}_0^{(k,A_1)}]}{8}$$

No. 100 $\hat{\mathbb{Q}}_3^{(A_1,2)}(1,-1)$ $[\mathrm{M}_1, \mathrm{B}_3]$

$$\hat{\mathbb{Z}}_{100} = \frac{\sqrt{5}\mathbb{X}_{26}[\mathbb{M}_3^{(a,B_1,1)}(1,-1)] \otimes \mathbb{Y}_{22}[\mathbb{T}_1^{(b,B_1)}]}{4} - \frac{\sqrt{3}\mathbb{X}_{27}[\mathbb{M}_3^{(a,B_1,2)}(1,-1)] \otimes \mathbb{Y}_{22}[\mathbb{T}_1^{(b,B_1)}]}{4}$$
$$+ \frac{\sqrt{5}\mathbb{X}_{31}[\mathbb{M}_3^{(a,B_2,1)}(1,-1)] \otimes \mathbb{Y}_{23}[\mathbb{T}_1^{(b,B_2)}]}{4} + \frac{\sqrt{3}\mathbb{X}_{32}[\mathbb{M}_3^{(a,B_2,2)}(1,-1)] \otimes \mathbb{Y}_{23}[\mathbb{T}_1^{(b,B_2)}]}{4}$$

$$\hat{\mathbb{Z}}_{100}(\boldsymbol{k}) = \frac{\sqrt{10}\mathbb{X}_{26}[\mathbb{M}_3^{(a,B_1,1)}(1,-1)] \otimes \mathbb{U}_{13}[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{18}[\mathbb{T}_1^{(k,B_1)}]}{8} + \frac{\sqrt{10}\mathbb{X}_{26}[\mathbb{M}_3^{(a,B_1,1)}(1,-1)] \otimes \mathbb{U}_{14}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{16}[\mathbb{Q}_2^{(k,A_2)}]}{8}$$
$$- \frac{\sqrt{6}\mathbb{X}_{27}[\mathbb{M}_3^{(a,B_1,2)}(1,-1)] \otimes \mathbb{U}_{13}[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{18}[\mathbb{T}_1^{(k,B_1)}]}{8} - \frac{\sqrt{6}\mathbb{X}_{27}[\mathbb{M}_3^{(a,B_1,2)}(1,-1)] \otimes \mathbb{U}_{14}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{16}[\mathbb{Q}_2^{(k,A_2)}]}{8}$$
$$+ \frac{\sqrt{10}\mathbb{X}_{31}[\mathbb{M}_3^{(a,B_2,1)}(1,-1)] \otimes \mathbb{U}_{13}[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{19}[\mathbb{T}_1^{(k,B_2)}]}{8} + \frac{\sqrt{10}\mathbb{X}_{31}[\mathbb{M}_3^{(a,B_2,1)}(1,-1)] \otimes \mathbb{U}_{14}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{13}[\mathbb{Q}_0^{(k,A_1)}]}{8}$$
$$+ \frac{\sqrt{6}\mathbb{X}_{32}[\mathbb{M}_3^{(a,B_2,2)}(1,-1)] \otimes \mathbb{U}_{13}[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{19}[\mathbb{T}_1^{(k,B_2)}]}{8} + \frac{\sqrt{6}\mathbb{X}_{32}[\mathbb{M}_3^{(a,B_2,2)}(1,-1)] \otimes \mathbb{U}_{14}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{13}[\mathbb{Q}_0^{(k,A_1)}]}{8}$$

No. 101 $\hat{\mathbb{G}}_4^{(A_1,1)}(1,-1)$ $[\mathrm{M}_1, \mathrm{B}_3]$

$$\hat{\mathbb{Z}}_{101} = -\frac{\sqrt{5}\mathbb{X}_{26}[\mathbb{M}_3^{(a,B_1,1)}(1,-1)] \otimes \mathbb{Y}_{22}[\mathbb{T}_1^{(b,B_1)}]}{4} - \frac{\sqrt{3}\mathbb{X}_{27}[\mathbb{M}_3^{(a,B_1,2)}(1,-1)] \otimes \mathbb{Y}_{22}[\mathbb{T}_1^{(b,B_1)}]}{4}$$
$$+ \frac{\sqrt{5}\mathbb{X}_{31}[\mathbb{M}_3^{(a,B_2,1)}(1,-1)] \otimes \mathbb{Y}_{23}[\mathbb{T}_1^{(b,B_2)}]}{4} - \frac{\sqrt{3}\mathbb{X}_{32}[\mathbb{M}_3^{(a,B_2,2)}(1,-1)] \otimes \mathbb{Y}_{23}[\mathbb{T}_1^{(b,B_2)}]}{4}$$

$$\hat{\mathbb{Z}}_{101}(\boldsymbol{k}) = -\frac{\sqrt{10}\mathbb{X}_{26}[\mathbb{M}_3^{(a,B_1,1)}(1,-1)] \otimes \mathbb{U}_{13}[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{18}[\mathbb{T}_1^{(k,B_1)}]}{8} - \frac{\sqrt{10}\mathbb{X}_{26}[\mathbb{M}_3^{(a,B_1,1)}(1,-1)] \otimes \mathbb{U}_{14}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{16}[\mathbb{Q}_2^{(k,A_2)}]}{8}$$
$$- \frac{\sqrt{6}\mathbb{X}_{27}[\mathbb{M}_3^{(a,B_1,2)}(1,-1)] \otimes \mathbb{U}_{13}[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{18}[\mathbb{T}_1^{(k,B_1)}]}{8} - \frac{\sqrt{6}\mathbb{X}_{27}[\mathbb{M}_3^{(a,B_1,2)}(1,-1)] \otimes \mathbb{U}_{14}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{16}[\mathbb{Q}_2^{(k,A_2)}]}{8}$$
$$+ \frac{\sqrt{10}\mathbb{X}_{31}[\mathbb{M}_3^{(a,B_2,1)}(1,-1)] \otimes \mathbb{U}_{13}[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{19}[\mathbb{T}_1^{(k,B_2)}]}{8} + \frac{\sqrt{10}\mathbb{X}_{31}[\mathbb{M}_3^{(a,B_2,1)}(1,-1)] \otimes \mathbb{U}_{14}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{13}[\mathbb{Q}_0^{(k,A_1)}]}{8}$$
$$- \frac{\sqrt{6}\mathbb{X}_{32}[\mathbb{M}_3^{(a,B_2,2)}(1,-1)] \otimes \mathbb{U}_{13}[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{19}[\mathbb{T}_1^{(k,B_2)}]}{8} - \frac{\sqrt{6}\mathbb{X}_{32}[\mathbb{M}_3^{(a,B_2,2)}(1,-1)] \otimes \mathbb{U}_{14}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{13}[\mathbb{Q}_0^{(k,A_1)}]}{8}$$

No. 102 $\hat{\mathbb{Q}}_2^{(A_1,1)}(1,-1)$ $[\mathrm{M}_1, \mathrm{B}_3]$

$$\hat{\mathbb{Z}}_{102} = \mathbb{X}_{22}[\mathbb{M}_3^{(a,A_2,2)}(1,-1)] \otimes \mathbb{Y}_{24}[\mathbb{T}_2^{(b,A_2)}]$$

$$\hat{\mathbb{Z}}_{102}(\boldsymbol{k}) = \frac{\sqrt{2}\mathbb{X}_{22}[\mathbb{M}_3^{(a,A_2,2)}(1,-1)] \otimes \mathbb{U}_{13}[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{20}[\mathbb{T}_2^{(k,A_2)}]}{2} + \frac{\sqrt{2}\mathbb{X}_{22}[\mathbb{M}_3^{(a,A_2,2)}(1,-1)] \otimes \mathbb{U}_{14}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{14}[\mathbb{Q}_1^{(k,B_1)}]}{2}$$

No. 103 $\hat{\mathbb{Q}}_2^{(A_1,2)}(1,-1)$ $[\mathrm{M}_1, \mathrm{B}_3]$

$$\hat{\mathbb{Z}}_{103} = \mathbb{X}_{21}[\mathbb{M}_3^{(a,A_2,1)}(1,-1)] \otimes \mathbb{Y}_{24}[\mathbb{T}_2^{(b,A_2)}]$$

$$\hat{\mathbb{Z}}_{103}(\boldsymbol{k}) = \frac{\sqrt{2}\mathbb{X}_{21}[\mathbb{M}_3^{(a,A_2,1)}(1,-1)] \otimes \mathbb{U}_{13}[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{20}[\mathbb{T}_2^{(k,A_2)}]}{2} + \frac{\sqrt{2}\mathbb{X}_{21}[\mathbb{M}_3^{(a,A_2,1)}(1,-1)] \otimes \mathbb{U}_{14}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{14}[\mathbb{Q}_1^{(k,B_1)}]}{2}$$

No. 104 $\hat{\mathbb{Q}}_2^{(A_1,1)}(1,0)$ $[\mathrm{M}_1,\mathrm{B}_3]$

$$\hat{\mathbb{Z}}_{104} = \mathbb{X}_{35}[\mathbb{T}_2^{(a,A_1,1)}(1,0)] \otimes \mathbb{Y}_{21}[\mathbb{T}_0^{(b,A_1)}]$$

$$\hat{\mathbb{Z}}_{104}(\boldsymbol{k}) = \frac{\sqrt{2}\mathbb{X}_{35}[\mathbb{T}_2^{(a,A_1,1)}(1,0)] \otimes \mathbb{U}_{13}[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{17}[\mathbb{T}_0^{(k,A_1)}]}{2} + \frac{\sqrt{2}\mathbb{X}_{35}[\mathbb{T}_2^{(a,A_1,1)}(1,0)] \otimes \mathbb{U}_{14}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{15}[\mathbb{Q}_1^{(k,B_2)}]}{2}$$

No. 105 $\hat{\mathbb{Q}}_2^{(A_1,2)}(1,0)$ $[\mathrm{M}_1,\mathrm{B}_3]$

$$\hat{\mathbb{Z}}_{105} = \mathbb{X}_{36}[\mathbb{T}_2^{(a,A_1,2)}(1,0)] \otimes \mathbb{Y}_{21}[\mathbb{T}_0^{(b,A_1)}]$$

$$\hat{\mathbb{Z}}_{105}(\boldsymbol{k}) = \frac{\sqrt{2}\mathbb{X}_{36}[\mathbb{T}_2^{(a,A_1,2)}(1,0)] \otimes \mathbb{U}_{13}[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{17}[\mathbb{T}_0^{(k,A_1)}]}{2} + \frac{\sqrt{2}\mathbb{X}_{36}[\mathbb{T}_2^{(a,A_1,2)}(1,0)] \otimes \mathbb{U}_{14}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{15}[\mathbb{Q}_1^{(k,B_2)}]}{2}$$

No. 106 $\hat{\mathbb{Q}}_1^{(A_1)}(1,0)$ $[\mathrm{M}_1,\mathrm{B}_3]$

$$\hat{\mathbb{Z}}_{106} = \frac{\sqrt{2}\mathbb{X}_{28}[\mathbb{T}_2^{(a,B_1)}(1,0)] \otimes \mathbb{Y}_{22}[\mathbb{T}_1^{(b,B_1)}]}{2} + \frac{\sqrt{2}\mathbb{X}_{33}[\mathbb{T}_2^{(a,B_2)}(1,0)] \otimes \mathbb{Y}_{23}[\mathbb{T}_1^{(b,B_2)}]}{2}$$

$$\begin{aligned}\hat{\mathbb{Z}}_{106}(\boldsymbol{k}) = {} & \frac{\mathbb{X}_{28}[\mathbb{T}_2^{(a,B_1)}(1,0)] \otimes \mathbb{U}_{13}[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{18}[\mathbb{T}_1^{(k,B_1)}]}{2} + \frac{\mathbb{X}_{28}[\mathbb{T}_2^{(a,B_1)}(1,0)] \otimes \mathbb{U}_{14}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{16}[\mathbb{Q}_2^{(k,A_2)}]}{2} \\ & + \frac{\mathbb{X}_{33}[\mathbb{T}_2^{(a,B_2)}(1,0)] \otimes \mathbb{U}_{13}[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{19}[\mathbb{T}_1^{(k,B_2)}]}{2} + \frac{\mathbb{X}_{33}[\mathbb{T}_2^{(a,B_2)}(1,0)] \otimes \mathbb{U}_{14}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{13}[\mathbb{Q}_0^{(k,A_1)}]}{2}\end{aligned}$$

No. 107 $\hat{\mathbb{G}}_2^{(A_1)}(1,0)$ $[\mathrm{M}_1,\mathrm{B}_3]$

$$\hat{\mathbb{Z}}_{107} = \frac{\sqrt{2}\mathbb{X}_{28}[\mathbb{T}_2^{(a,B_1)}(1,0)] \otimes \mathbb{Y}_{22}[\mathbb{T}_1^{(b,B_1)}]}{2} - \frac{\sqrt{2}\mathbb{X}_{33}[\mathbb{T}_2^{(a,B_2)}(1,0)] \otimes \mathbb{Y}_{23}[\mathbb{T}_1^{(b,B_2)}]}{2}$$

$$\begin{aligned}\hat{\mathbb{Z}}_{107}(\boldsymbol{k}) = {} & \frac{\mathbb{X}_{28}[\mathbb{T}_2^{(a,B_1)}(1,0)] \otimes \mathbb{U}_{13}[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{18}[\mathbb{T}_1^{(k,B_1)}]}{2} + \frac{\mathbb{X}_{28}[\mathbb{T}_2^{(a,B_1)}(1,0)] \otimes \mathbb{U}_{14}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{16}[\mathbb{Q}_2^{(k,A_2)}]}{2} \\ & - \frac{\mathbb{X}_{33}[\mathbb{T}_2^{(a,B_2)}(1,0)] \otimes \mathbb{U}_{13}[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{19}[\mathbb{T}_1^{(k,B_2)}]}{2} - \frac{\mathbb{X}_{33}[\mathbb{T}_2^{(a,B_2)}(1,0)] \otimes \mathbb{U}_{14}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{13}[\mathbb{Q}_0^{(k,A_1)}]}{2}\end{aligned}$$

No. 108 $\hat{\mathbb{Q}}_0^{(A_1)}(1,0)$ $[\mathrm{M}_1,\mathrm{B}_3]$

$$\hat{\mathbb{Z}}_{108} = \mathbb{X}_{23}[\mathbb{T}_2^{(a,A_2)}(1,0)] \otimes \mathbb{Y}_{24}[\mathbb{T}_2^{(b,A_2)}]$$

$$\hat{\mathbb{Z}}_{108}(\boldsymbol{k}) = \frac{\sqrt{2}\mathbb{X}_{23}[\mathbb{T}_2^{(a,A_2)}(1,0)] \otimes \mathbb{U}_{13}[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{20}[\mathbb{T}_2^{(k,A_2)}]}{2} + \frac{\sqrt{2}\mathbb{X}_{23}[\mathbb{T}_2^{(a,A_2)}(1,0)] \otimes \mathbb{U}_{14}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{14}[\mathbb{Q}_1^{(k,B_1)}]}{2}$$

No. 109 $\hat{\mathbb{Q}}_0^{(A_1)}$ $[\mathrm{M}_1, \mathrm{B}_4]$

$$\hat{\mathbb{Z}}_{109} = \mathbb{X}_1[\mathbb{Q}_0^{(a,A_1)}] \otimes \mathbb{Y}_{25}[\mathbb{Q}_0^{(b,A_1)}]$$

$$\hat{\mathbb{Z}}_{109}(\boldsymbol{k}) = \frac{\sqrt{2}\mathbb{X}_1[\mathbb{Q}_0^{(a,A_1)}] \otimes \mathbb{U}_{15}[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{21}[\mathbb{Q}_0^{(k,A_1)}]}{2} - \frac{\sqrt{2}\mathbb{X}_1[\mathbb{Q}_0^{(a,A_1)}] \otimes \mathbb{U}_{16}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{27}[\mathbb{T}_1^{(k,B_2)}]}{2}$$

No. 110 $\hat{\mathbb{Q}}_2^{(A_1,1)}$ $[\mathrm{M}_1, \mathrm{B}_4]$

$$\hat{\mathbb{Z}}_{110} = \mathbb{X}_2[\mathbb{Q}_2^{(a,A_1,1)}] \otimes \mathbb{Y}_{25}[\mathbb{Q}_0^{(b,A_1)}]$$

$$\hat{\mathbb{Z}}_{110}(\boldsymbol{k}) = \frac{\sqrt{2}\mathbb{X}_2[\mathbb{Q}_2^{(a,A_1,1)}] \otimes \mathbb{U}_{15}[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{21}[\mathbb{Q}_0^{(k,A_1)}]}{2} - \frac{\sqrt{2}\mathbb{X}_2[\mathbb{Q}_2^{(a,A_1,1)}] \otimes \mathbb{U}_{16}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{27}[\mathbb{T}_1^{(k,B_2)}]}{2}$$

No. 111 $\hat{\mathbb{Q}}_2^{(A_1,2)}$ $[\mathrm{M}_1, \mathrm{B}_4]$

$$\hat{\mathbb{Z}}_{111} = \mathbb{X}_3[\mathbb{Q}_2^{(a,A_1,2)}] \otimes \mathbb{Y}_{25}[\mathbb{Q}_0^{(b,A_1)}]$$

$$\hat{\mathbb{Z}}_{111}(\boldsymbol{k}) = \frac{\sqrt{2}\mathbb{X}_3[\mathbb{Q}_2^{(a,A_1,2)}] \otimes \mathbb{U}_{15}[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{21}[\mathbb{Q}_0^{(k,A_1)}]}{2} - \frac{\sqrt{2}\mathbb{X}_3[\mathbb{Q}_2^{(a,A_1,2)}] \otimes \mathbb{U}_{16}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{27}[\mathbb{T}_1^{(k,B_2)}]}{2}$$

No. 112 $\hat{\mathbb{Q}}_1^{(A_1)}$ $[\mathrm{M}_1, \mathrm{B}_4]$

$$\hat{\mathbb{Z}}_{112} = \frac{\sqrt{2}\mathbb{X}_8[\mathbb{Q}_2^{(a,B_1)}] \otimes \mathbb{Y}_{26}[\mathbb{Q}_1^{(b,B_1)}]}{2} + \frac{\sqrt{2}\mathbb{X}_9[\mathbb{Q}_2^{(a,B_2)}] \otimes \mathbb{Y}_{27}[\mathbb{Q}_1^{(b,B_2)}]}{2}$$

$$\begin{aligned}\hat{\mathbb{Z}}_{112}(\boldsymbol{k}) = {} & \frac{\mathbb{X}_8[\mathbb{Q}_2^{(a,B_1)}] \otimes \mathbb{U}_{15}[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{22}[\mathbb{Q}_1^{(k,B_1)}]}{2} - \frac{\mathbb{X}_8[\mathbb{Q}_2^{(a,B_1)}] \otimes \mathbb{U}_{16}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{28}[\mathbb{T}_2^{(k,A_2)}]}{2} \\ & + \frac{\mathbb{X}_9[\mathbb{Q}_2^{(a,B_2)}] \otimes \mathbb{U}_{15}[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{23}[\mathbb{Q}_1^{(k,B_2)}]}{2} - \frac{\mathbb{X}_9[\mathbb{Q}_2^{(a,B_2)}] \otimes \mathbb{U}_{16}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{25}[\mathbb{T}_0^{(k,A_1)}]}{2}\end{aligned}$$

No. 113 $\hat{\mathbb{G}}_2^{(A_1)}$ $[\mathrm{M}_1, \mathrm{B}_4]$

$$\hat{\mathbb{Z}}_{113} = \frac{\sqrt{2}\mathbb{X}_8[\mathbb{Q}_2^{(a,B_1)}] \otimes \mathbb{Y}_{26}[\mathbb{Q}_1^{(b,B_1)}]}{2} - \frac{\sqrt{2}\mathbb{X}_9[\mathbb{Q}_2^{(a,B_2)}] \otimes \mathbb{Y}_{27}[\mathbb{Q}_1^{(b,B_2)}]}{2}$$

$$\hat{\mathbb{Z}}_{113}(\boldsymbol{k}) = \frac{\mathbb{X}_8[\mathbb{Q}_2^{(a,B_1)}] \otimes \mathbb{U}_{15}[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{22}[\mathbb{Q}_1^{(k,B_1)}]}{2} - \frac{\mathbb{X}_8[\mathbb{Q}_2^{(a,B_1)}] \otimes \mathbb{U}_{16}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{28}[\mathbb{T}_2^{(k,A_2)}]}{2}$$
$$- \frac{\mathbb{X}_9[\mathbb{Q}_2^{(a,B_2)}] \otimes \mathbb{U}_{15}[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{23}[\mathbb{Q}_1^{(k,B_2)}]}{2} + \frac{\mathbb{X}_9[\mathbb{Q}_2^{(a,B_2)}] \otimes \mathbb{U}_{16}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{25}[\mathbb{T}_0^{(k,A_1)}]}{2}$$

No. 114 $\hat{\mathbb{Q}}_0^{(A_1)}$ $[\mathrm{M}_1, \mathrm{B}_4]$

$$\hat{\mathbb{Z}}_{114} = \mathbb{X}_7[\mathbb{Q}_2^{(a,A_2)}] \otimes \mathbb{Y}_{28}[\mathbb{Q}_2^{(b,A_2)}]$$

$$\hat{\mathbb{Z}}_{114}(\boldsymbol{k}) = \frac{\sqrt{2}\mathbb{X}_7[\mathbb{Q}_2^{(a,A_2)}] \otimes \mathbb{U}_{15}[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{24}[\mathbb{Q}_2^{(k,A_2)}]}{2} - \frac{\sqrt{2}\mathbb{X}_7[\mathbb{Q}_2^{(a,A_2)}] \otimes \mathbb{U}_{16}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{26}[\mathbb{T}_1^{(k,B_1)}]}{2}$$

No. 115 $\hat{\mathbb{Q}}_0^{(A_1)}(1,1)$ $[\mathrm{M}_1, \mathrm{B}_4]$

$$\hat{\mathbb{Z}}_{115} = \mathbb{X}_4[\mathbb{Q}_0^{(a,A_1)}(1,1)] \otimes \mathbb{Y}_{25}[\mathbb{Q}_0^{(b,A_1)}]$$

$$\hat{\mathbb{Z}}_{115}(\boldsymbol{k}) = \frac{\sqrt{2}\mathbb{X}_4[\mathbb{Q}_0^{(a,A_1)}(1,1)] \otimes \mathbb{U}_{15}[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{21}[\mathbb{Q}_0^{(k,A_1)}]}{2} - \frac{\sqrt{2}\mathbb{X}_4[\mathbb{Q}_0^{(a,A_1)}(1,1)] \otimes \mathbb{U}_{16}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{27}[\mathbb{T}_1^{(k,B_2)}]}{2}$$

No. 116 $\hat{\mathbb{Q}}_2^{(A_1,1)}(1,-1)$ $[\mathrm{M}_1, \mathrm{B}_4]$

$$\hat{\mathbb{Z}}_{116} = \mathbb{X}_5[\mathbb{Q}_2^{(a,A_1,1)}(1,-1)] \otimes \mathbb{Y}_{25}[\mathbb{Q}_0^{(b,A_1)}]$$

$$\hat{\mathbb{Z}}_{116}(\boldsymbol{k}) = \frac{\sqrt{2}\mathbb{X}_5[\mathbb{Q}_2^{(a,A_1,1)}(1,-1)] \otimes \mathbb{U}_{15}[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{21}[\mathbb{Q}_0^{(k,A_1)}]}{2} - \frac{\sqrt{2}\mathbb{X}_5[\mathbb{Q}_2^{(a,A_1,1)}(1,-1)] \otimes \mathbb{U}_{16}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{27}[\mathbb{T}_1^{(k,B_2)}]}{2}$$

No. 117 $\hat{\mathbb{Q}}_2^{(A_1,2)}(1,-1)$ $[\mathrm{M}_1, \mathrm{B}_4]$

$$\hat{\mathbb{Z}}_{117} = \mathbb{X}_6[\mathbb{Q}_2^{(a,A_1,2)}(1,-1)] \otimes \mathbb{Y}_{25}[\mathbb{Q}_0^{(b,A_1)}]$$

$$\hat{\mathbb{Z}}_{117}(\boldsymbol{k}) = \frac{\sqrt{2}\mathbb{X}_6[\mathbb{Q}_2^{(a,A_1,2)}(1,-1)] \otimes \mathbb{U}_{15}[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{21}[\mathbb{Q}_0^{(k,A_1)}]}{2} - \frac{\sqrt{2}\mathbb{X}_6[\mathbb{Q}_2^{(a,A_1,2)}(1,-1)] \otimes \mathbb{U}_{16}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{27}[\mathbb{T}_1^{(k,B_2)}]}{2}$$

No. 118 $\hat{\mathbb{Q}}_1^{(A_1)}(1,-1)$ $[\mathrm{M}_1, \mathrm{B}_4]$

$$\hat{\mathbb{Z}}_{118} = \frac{\sqrt{2}\mathbb{X}_{12}[\mathbb{Q}_2^{(a,B_1)}(1,-1)] \otimes \mathbb{Y}_{26}[\mathbb{Q}_1^{(b,B_1)}]}{2} + \frac{\sqrt{2}\mathbb{X}_{14}[\mathbb{Q}_2^{(a,B_2)}(1,-1)] \otimes \mathbb{Y}_{27}[\mathbb{Q}_1^{(b,B_2)}]}{2}$$

$$\hat{\mathbb{Z}}_{118}(\boldsymbol{k}) = \frac{\mathbb{X}_{12}[\mathbb{Q}_2^{(a,B_1)}(1,-1)] \otimes \mathbb{U}_{15}[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{22}[\mathbb{Q}_1^{(k,B_1)}]}{2} - \frac{\mathbb{X}_{12}[\mathbb{Q}_2^{(a,B_1)}(1,-1)] \otimes \mathbb{U}_{16}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{28}[\mathbb{T}_2^{(k,A_2)}]}{2}$$
$$+ \frac{\mathbb{X}_{14}[\mathbb{Q}_2^{(a,B_2)}(1,-1)] \otimes \mathbb{U}_{15}[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{23}[\mathbb{Q}_1^{(k,B_2)}]}{2} - \frac{\mathbb{X}_{14}[\mathbb{Q}_2^{(a,B_2)}(1,-1)] \otimes \mathbb{U}_{16}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{25}[\mathbb{T}_0^{(k,A_1)}]}{2}$$

No. 119 $\hat{\mathbb{G}}_2^{(A_1)}(1,-1)$ $[\mathrm{M}_1, \mathrm{B}_4]$

$$\hat{\mathbb{Z}}_{119} = \frac{\sqrt{2}\mathbb{X}_{12}[\mathbb{Q}_2^{(a,B_1)}(1,-1)] \otimes \mathbb{Y}_{26}[\mathbb{Q}_1^{(b,B_1)}]}{2} - \frac{\sqrt{2}\mathbb{X}_{14}[\mathbb{Q}_2^{(a,B_2)}(1,-1)] \otimes \mathbb{Y}_{27}[\mathbb{Q}_1^{(b,B_2)}]}{2}$$

$$\hat{\mathbb{Z}}_{119}(\boldsymbol{k}) = \frac{\mathbb{X}_{12}[\mathbb{Q}_2^{(a,B_1)}(1,-1)] \otimes \mathbb{U}_{15}[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{22}[\mathbb{Q}_1^{(k,B_1)}]}{2} - \frac{\mathbb{X}_{12}[\mathbb{Q}_2^{(a,B_1)}(1,-1)] \otimes \mathbb{U}_{16}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{28}[\mathbb{T}_2^{(k,A_2)}]}{2}$$
$$- \frac{\mathbb{X}_{14}[\mathbb{Q}_2^{(a,B_2)}(1,-1)] \otimes \mathbb{U}_{15}[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{23}[\mathbb{Q}_1^{(k,B_2)}]}{2} + \frac{\mathbb{X}_{14}[\mathbb{Q}_2^{(a,B_2)}(1,-1)] \otimes \mathbb{U}_{16}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{25}[\mathbb{T}_0^{(k,A_1)}]}{2}$$

No. 120 $\hat{\mathbb{Q}}_0^{(A_1)}(1,-1)$ $[\mathrm{M}_1, \mathrm{B}_4]$

$$\hat{\mathbb{Z}}_{120} = \mathbb{X}_{10}[\mathbb{Q}_2^{(a,A_2)}(1,-1)] \otimes \mathbb{Y}_{28}[\mathbb{Q}_2^{(b,A_2)}]$$

$$\hat{\mathbb{Z}}_{120}(\boldsymbol{k}) = \frac{\sqrt{2}\mathbb{X}_{10}[\mathbb{Q}_2^{(a,A_2)}(1,-1)] \otimes \mathbb{U}_{15}[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{24}[\mathbb{Q}_2^{(k,A_2)}]}{2} - \frac{\sqrt{2}\mathbb{X}_{10}[\mathbb{Q}_2^{(a,A_2)}(1,-1)] \otimes \mathbb{U}_{16}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{26}[\mathbb{T}_1^{(k,B_1)}]}{2}$$

No. 121 $\hat{\mathbb{Q}}_1^{(A_1)}(1,0)$ $[\mathrm{M}_1, \mathrm{B}_4]$

$$\hat{\mathbb{Z}}_{121} = -\frac{\sqrt{2}\mathbb{X}_{13}[\mathbb{G}_1^{(a,B_1)}(1,0)] \otimes \mathbb{Y}_{26}[\mathbb{Q}_1^{(b,B_1)}]}{2} + \frac{\sqrt{2}\mathbb{X}_{15}[\mathbb{G}_1^{(a,B_2)}(1,0)] \otimes \mathbb{Y}_{27}[\mathbb{Q}_1^{(b,B_2)}]}{2}$$

$$\hat{\mathbb{Z}}_{121}(\boldsymbol{k}) = -\frac{\mathbb{X}_{13}[\mathbb{G}_1^{(a,B_1)}(1,0)] \otimes \mathbb{U}_{15}[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{22}[\mathbb{Q}_1^{(k,B_1)}]}{2} + \frac{\mathbb{X}_{13}[\mathbb{G}_1^{(a,B_1)}(1,0)] \otimes \mathbb{U}_{16}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{28}[\mathbb{T}_2^{(k,A_2)}]}{2}$$
$$+ \frac{\mathbb{X}_{15}[\mathbb{G}_1^{(a,B_2)}(1,0)] \otimes \mathbb{U}_{15}[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{23}[\mathbb{Q}_1^{(k,B_2)}]}{2} - \frac{\mathbb{X}_{15}[\mathbb{G}_1^{(a,B_2)}(1,0)] \otimes \mathbb{U}_{16}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{25}[\mathbb{T}_0^{(k,A_1)}]}{2}$$

No. 122 $\hat{\mathbb{G}}_2^{(A_1)}(1,0)$ $[\mathrm{M}_1, \mathrm{B}_4]$

$$\hat{\mathbb{Z}}_{122} = \frac{\sqrt{2}\mathbb{X}_{13}[\mathbb{G}_1^{(a,B_1)}(1,0)] \otimes \mathbb{Y}_{26}[\mathbb{Q}_1^{(b,B_1)}]}{2} + \frac{\sqrt{2}\mathbb{X}_{15}[\mathbb{G}_1^{(a,B_2)}(1,0)] \otimes \mathbb{Y}_{27}[\mathbb{Q}_1^{(b,B_2)}]}{2}$$

$$\hat{\mathbb{Z}}_{122}(\boldsymbol{k}) = \frac{\mathbb{X}_{13}[\mathbb{G}_1^{(a,B_1)}(1,0)] \otimes \mathbb{U}_{15}[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{22}[\mathbb{Q}_1^{(k,B_1)}]}{2} - \frac{\mathbb{X}_{13}[\mathbb{G}_1^{(a,B_1)}(1,0)] \otimes \mathbb{U}_{16}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{28}[\mathbb{T}_2^{(k,A_2)}]}{2}$$
$$+ \frac{\mathbb{X}_{15}[\mathbb{G}_1^{(a,B_2)}(1,0)] \otimes \mathbb{U}_{15}[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{23}[\mathbb{Q}_1^{(k,B_2)}]}{2} - \frac{\mathbb{X}_{15}[\mathbb{G}_1^{(a,B_2)}(1,0)] \otimes \mathbb{U}_{16}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{25}[\mathbb{T}_0^{(k,A_1)}]}{2}$$

No. 123 $\hat{\mathbb{Q}}_2^{(A_1,2)}(1,0)$ $[\mathrm{M}_1, \mathrm{B}_4]$

$$\hat{\mathbb{Z}}_{123} = -\mathbb{X}_{11}[\mathbb{G}_1^{(a,A_2)}(1,0)] \otimes \mathbb{Y}_{28}[\mathbb{Q}_2^{(b,A_2)}]$$

$$\hat{\mathbb{Z}}_{123}(\boldsymbol{k}) = -\frac{\sqrt{2}\mathbb{X}_{11}[\mathbb{G}_1^{(a,A_2)}(1,0)] \otimes \mathbb{U}_{15}[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{24}[\mathbb{Q}_2^{(k,A_2)}]}{2} + \frac{\sqrt{2}\mathbb{X}_{11}[\mathbb{G}_1^{(a,A_2)}(1,0)] \otimes \mathbb{U}_{16}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{26}[\mathbb{T}_1^{(k,B_1)}]}{2}$$

No. 124 $\hat{\mathbb{Q}}_1^{(A_1)}$ $[\mathrm{M}_1, \mathrm{B}_4]$

$$\hat{\mathbb{Z}}_{124} = -\frac{\sqrt{2}\mathbb{X}_{17}[\mathbb{M}_1^{(a,B_1)}] \otimes \mathbb{Y}_{30}[\mathbb{T}_1^{(b,B_1)}]}{2} + \frac{\sqrt{2}\mathbb{X}_{18}[\mathbb{M}_1^{(a,B_2)}] \otimes \mathbb{Y}_{31}[\mathbb{T}_1^{(b,B_2)}]}{2}$$

$$\hat{\mathbb{Z}}_{124}(\boldsymbol{k}) = -\frac{\mathbb{X}_{17}[\mathbb{M}_1^{(a,B_1)}] \otimes \mathbb{U}_{15}[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{26}[\mathbb{T}_1^{(k,B_1)}]}{2} - \frac{\mathbb{X}_{17}[\mathbb{M}_1^{(a,B_1)}] \otimes \mathbb{U}_{16}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{24}[\mathbb{Q}_2^{(k,A_2)}]}{2}$$
$$+ \frac{\mathbb{X}_{18}[\mathbb{M}_1^{(a,B_2)}] \otimes \mathbb{U}_{15}[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{27}[\mathbb{T}_1^{(k,B_2)}]}{2} + \frac{\mathbb{X}_{18}[\mathbb{M}_1^{(a,B_2)}] \otimes \mathbb{U}_{16}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{21}[\mathbb{Q}_0^{(k,A_1)}]}{2}$$

No. 125 $\hat{\mathbb{G}}_2^{(A_1)}$ $[\mathrm{M}_1, \mathrm{B}_4]$

$$\hat{\mathbb{Z}}_{125} = \frac{\sqrt{2}\mathbb{X}_{17}[\mathbb{M}_1^{(a,B_1)}] \otimes \mathbb{Y}_{30}[\mathbb{T}_1^{(b,B_1)}]}{2} + \frac{\sqrt{2}\mathbb{X}_{18}[\mathbb{M}_1^{(a,B_2)}] \otimes \mathbb{Y}_{31}[\mathbb{T}_1^{(b,B_2)}]}{2}$$

$$\hat{\mathbb{Z}}_{125}(\boldsymbol{k}) = \frac{\mathbb{X}_{17}[\mathbb{M}_1^{(a,B_1)}] \otimes \mathbb{U}_{15}[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{26}[\mathbb{T}_1^{(k,B_1)}]}{2} + \frac{\mathbb{X}_{17}[\mathbb{M}_1^{(a,B_1)}] \otimes \mathbb{U}_{16}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{24}[\mathbb{Q}_2^{(k,A_2)}]}{2}$$
$$+ \frac{\mathbb{X}_{18}[\mathbb{M}_1^{(a,B_2)}] \otimes \mathbb{U}_{15}[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{27}[\mathbb{T}_1^{(k,B_2)}]}{2} + \frac{\mathbb{X}_{18}[\mathbb{M}_1^{(a,B_2)}] \otimes \mathbb{U}_{16}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{21}[\mathbb{Q}_0^{(k,A_1)}]}{2}$$

No. 126 $\hat{\mathbb{Q}}_2^{(A_1,2)}$ $[\mathrm{M}_1, \mathrm{B}_4]$

$$\hat{\mathbb{Z}}_{126} = -\mathbb{X}_{16}[\mathbb{M}_1^{(a,A_2)}] \otimes \mathbb{Y}_{32}[\mathbb{T}_2^{(b,A_2)}]$$

$$\hat{\mathbb{Z}}_{126}(\boldsymbol{k}) = -\frac{\sqrt{2}\mathbb{X}_{16}[\mathbb{M}_1^{(a,A_2)}] \otimes \mathbb{U}_{15}[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{28}[\mathbb{T}_2^{(k,A_2)}]}{2} - \frac{\sqrt{2}\mathbb{X}_{16}[\mathbb{M}_1^{(a,A_2)}] \otimes \mathbb{U}_{16}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{22}[\mathbb{Q}_1^{(k,B_1)}]}{2}$$

No. 127 $\hat{\mathbb{Q}}_1^{(A_1)}(1,1)$ $[\mathrm{M}_1, \mathrm{B}_4]$

$$\hat{\mathbb{Z}}_{127} = -\frac{\sqrt{2}\mathbb{X}_{24}[\mathbb{M}_1^{(a,B_1)}(1,1)] \otimes \mathbb{Y}_{30}[\mathbb{T}_1^{(b,B_1)}]}{2} + \frac{\sqrt{2}\mathbb{X}_{29}[\mathbb{M}_1^{(a,B_2)}(1,1)] \otimes \mathbb{Y}_{31}[\mathbb{T}_1^{(b,B_2)}]}{2}$$

$$\begin{aligned}\hat{\mathbb{Z}}_{127}(\boldsymbol{k}) = &-\frac{\mathbb{X}_{24}[\mathbb{M}_1^{(a,B_1)}(1,1)] \otimes \mathbb{U}_{15}[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{26}[\mathbb{T}_1^{(k,B_1)}]}{2} - \frac{\mathbb{X}_{24}[\mathbb{M}_1^{(a,B_1)}(1,1)] \otimes \mathbb{U}_{16}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{24}[\mathbb{Q}_2^{(k,A_2)}]}{2} \\ &+ \frac{\mathbb{X}_{29}[\mathbb{M}_1^{(a,B_2)}(1,1)] \otimes \mathbb{U}_{15}[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{27}[\mathbb{T}_1^{(k,B_2)}]}{2} + \frac{\mathbb{X}_{29}[\mathbb{M}_1^{(a,B_2)}(1,1)] \otimes \mathbb{U}_{16}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{21}[\mathbb{Q}_0^{(k,A_1)}]}{2}\end{aligned}$$

No. 128 $\hat{\mathbb{G}}_2^{(A_1)}(1,1)$ $[\mathrm{M}_1, \mathrm{B}_4]$

$$\hat{\mathbb{Z}}_{128} = \frac{\sqrt{2}\mathbb{X}_{24}[\mathbb{M}_1^{(a,B_1)}(1,1)] \otimes \mathbb{Y}_{30}[\mathbb{T}_1^{(b,B_1)}]}{2} + \frac{\sqrt{2}\mathbb{X}_{29}[\mathbb{M}_1^{(a,B_2)}(1,1)] \otimes \mathbb{Y}_{31}[\mathbb{T}_1^{(b,B_2)}]}{2}$$

$$\begin{aligned}\hat{\mathbb{Z}}_{128}(\boldsymbol{k}) = &\frac{\mathbb{X}_{24}[\mathbb{M}_1^{(a,B_1)}(1,1)] \otimes \mathbb{U}_{15}[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{26}[\mathbb{T}_1^{(k,B_1)}]}{2} + \frac{\mathbb{X}_{24}[\mathbb{M}_1^{(a,B_1)}(1,1)] \otimes \mathbb{U}_{16}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{24}[\mathbb{Q}_2^{(k,A_2)}]}{2} \\ &+ \frac{\mathbb{X}_{29}[\mathbb{M}_1^{(a,B_2)}(1,1)] \otimes \mathbb{U}_{15}[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{27}[\mathbb{T}_1^{(k,B_2)}]}{2} + \frac{\mathbb{X}_{29}[\mathbb{M}_1^{(a,B_2)}(1,1)] \otimes \mathbb{U}_{16}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{21}[\mathbb{Q}_0^{(k,A_1)}]}{2}\end{aligned}$$

No. 129 $\hat{\mathbb{Q}}_2^{(A_1,2)}(1,1)$ $[\mathrm{M}_1, \mathrm{B}_4]$

$$\hat{\mathbb{Z}}_{129} = -\mathbb{X}_{19}[\mathbb{M}_1^{(a,A_2)}(1,1)] \otimes \mathbb{Y}_{32}[\mathbb{T}_2^{(b,A_2)}]$$

$$\hat{\mathbb{Z}}_{129}(\boldsymbol{k}) = -\frac{\sqrt{2}\mathbb{X}_{19}[\mathbb{M}_1^{(a,A_2)}(1,1)] \otimes \mathbb{U}_{15}[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{28}[\mathbb{T}_2^{(k,A_2)}]}{2} - \frac{\sqrt{2}\mathbb{X}_{19}[\mathbb{M}_1^{(a,A_2)}(1,1)] \otimes \mathbb{U}_{16}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{22}[\mathbb{Q}_1^{(k,B_1)}]}{2}$$

No. 130 $\hat{\mathbb{Q}}_1^{(A_1)}(1,-1)$ $[\mathrm{M}_1, \mathrm{B}_4]$

$$\hat{\mathbb{Z}}_{130} = -\frac{\sqrt{2}\mathbb{X}_{25}[\mathbb{M}_1^{(a,B_1)}(1,-1)] \otimes \mathbb{Y}_{30}[\mathbb{T}_1^{(b,B_1)}]}{2} + \frac{\sqrt{2}\mathbb{X}_{30}[\mathbb{M}_1^{(a,B_2)}(1,-1)] \otimes \mathbb{Y}_{31}[\mathbb{T}_1^{(b,B_2)}]}{2}$$

$$\begin{aligned}\hat{\mathbb{Z}}_{130}(\boldsymbol{k}) = &-\frac{\mathbb{X}_{25}[\mathbb{M}_1^{(a,B_1)}(1,-1)] \otimes \mathbb{U}_{15}[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{26}[\mathbb{T}_1^{(k,B_1)}]}{2} - \frac{\mathbb{X}_{25}[\mathbb{M}_1^{(a,B_1)}(1,-1)] \otimes \mathbb{U}_{16}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{24}[\mathbb{Q}_2^{(k,A_2)}]}{2} \\ &+ \frac{\mathbb{X}_{30}[\mathbb{M}_1^{(a,B_2)}(1,-1)] \otimes \mathbb{U}_{15}[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{27}[\mathbb{T}_1^{(k,B_2)}]}{2} + \frac{\mathbb{X}_{30}[\mathbb{M}_1^{(a,B_2)}(1,-1)] \otimes \mathbb{U}_{16}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{21}[\mathbb{Q}_0^{(k,A_1)}]}{2}\end{aligned}$$

No. 131 $\hat{\mathbb{G}}_2^{(A_1)}(1,-1)$ $[\mathrm{M}_1,\mathrm{B}_4]$

$$\hat{\mathbb{Z}}_{131}=\frac{\sqrt{2}\mathbb{X}_{25}[\mathbb{M}_1^{(a,B_1)}(1,-1)]\otimes\mathbb{Y}_{30}[\mathbb{T}_1^{(b,B_1)}]}{2}+\frac{\sqrt{2}\mathbb{X}_{30}[\mathbb{M}_1^{(a,B_2)}(1,-1)]\otimes\mathbb{Y}_{31}[\mathbb{T}_1^{(b,B_2)}]}{2}$$

$$\begin{aligned}\hat{\mathbb{Z}}_{131}(\boldsymbol{k})=&\frac{\mathbb{X}_{25}[\mathbb{M}_1^{(a,B_1)}(1,-1)]\otimes\mathbb{U}_{15}[\mathbb{Q}_0^{(u,A_1)}]\otimes\mathbb{F}_{26}[\mathbb{T}_1^{(k,B_1)}]}{2}+\frac{\mathbb{X}_{25}[\mathbb{M}_1^{(a,B_1)}(1,-1)]\otimes\mathbb{U}_{16}[\mathbb{T}_1^{(u,B_2)}]\otimes\mathbb{F}_{24}[\mathbb{Q}_2^{(k,A_2)}]}{2}\\&+\frac{\mathbb{X}_{30}[\mathbb{M}_1^{(a,B_2)}(1,-1)]\otimes\mathbb{U}_{15}[\mathbb{Q}_0^{(u,A_1)}]\otimes\mathbb{F}_{27}[\mathbb{T}_1^{(k,B_2)}]}{2}+\frac{\mathbb{X}_{30}[\mathbb{M}_1^{(a,B_2)}(1,-1)]\otimes\mathbb{U}_{16}[\mathbb{T}_1^{(u,B_2)}]\otimes\mathbb{F}_{21}[\mathbb{Q}_0^{(k,A_1)}]}{2}\end{aligned}$$

No. 132 $\hat{\mathbb{Q}}_2^{(A_1,2)}(1,-1)$ $[\mathrm{M}_1,\mathrm{B}_4]$

$$\hat{\mathbb{Z}}_{132}=-\mathbb{X}_{20}[\mathbb{M}_1^{(a,A_2)}(1,-1)]\otimes\mathbb{Y}_{32}[\mathbb{T}_2^{(b,A_2)}]$$

$$\hat{\mathbb{Z}}_{132}(\boldsymbol{k})=-\frac{\sqrt{2}\mathbb{X}_{20}[\mathbb{M}_1^{(a,A_2)}(1,-1)]\otimes\mathbb{U}_{15}[\mathbb{Q}_0^{(u,A_1)}]\otimes\mathbb{F}_{28}[\mathbb{T}_2^{(k,A_2)}]}{2}-\frac{\sqrt{2}\mathbb{X}_{20}[\mathbb{M}_1^{(a,A_2)}(1,-1)]\otimes\mathbb{U}_{16}[\mathbb{T}_1^{(u,B_2)}]\otimes\mathbb{F}_{22}[\mathbb{Q}_1^{(k,B_1)}]}{2}$$

No. 133 $\hat{\mathbb{G}}_3^{(A_1)}(1,-1)$ $[\mathrm{M}_1,\mathrm{B}_4]$

$$\hat{\mathbb{Z}}_{133}=\mathbb{X}_{34}[\mathbb{M}_3^{(a,A_1)}(1,-1)]\otimes\mathbb{Y}_{29}[\mathbb{T}_0^{(b,A_1)}]$$

$$\hat{\mathbb{Z}}_{133}(\boldsymbol{k})=\frac{\sqrt{2}\mathbb{X}_{34}[\mathbb{M}_3^{(a,A_1)}(1,-1)]\otimes\mathbb{U}_{15}[\mathbb{Q}_0^{(u,A_1)}]\otimes\mathbb{F}_{25}[\mathbb{T}_0^{(k,A_1)}]}{2}+\frac{\sqrt{2}\mathbb{X}_{34}[\mathbb{M}_3^{(a,A_1)}(1,-1)]\otimes\mathbb{U}_{16}[\mathbb{T}_1^{(u,B_2)}]\otimes\mathbb{F}_{23}[\mathbb{Q}_1^{(k,B_2)}]}{2}$$

No. 134 $\hat{\mathbb{G}}_2^{(A_1)}(1,-1)$ $[\mathrm{M}_1,\mathrm{B}_4]$

$$\begin{aligned}\hat{\mathbb{Z}}_{134}=&-\frac{\sqrt{3}\mathbb{X}_{26}[\mathbb{M}_3^{(a,B_1,1)}(1,-1)]\otimes\mathbb{Y}_{30}[\mathbb{T}_1^{(b,B_1)}]}{4}-\frac{\sqrt{5}\mathbb{X}_{27}[\mathbb{M}_3^{(a,B_1,2)}(1,-1)]\otimes\mathbb{Y}_{30}[\mathbb{T}_1^{(b,B_1)}]}{4}\\&-\frac{\sqrt{3}\mathbb{X}_{31}[\mathbb{M}_3^{(a,B_2,1)}(1,-1)]\otimes\mathbb{Y}_{31}[\mathbb{T}_1^{(b,B_2)}]}{4}+\frac{\sqrt{5}\mathbb{X}_{32}[\mathbb{M}_3^{(a,B_2,2)}(1,-1)]\otimes\mathbb{Y}_{31}[\mathbb{T}_1^{(b,B_2)}]}{4}\end{aligned}$$

$$\begin{aligned}\hat{\mathbb{Z}}_{134}(\boldsymbol{k})=&-\frac{\sqrt{6}\mathbb{X}_{26}[\mathbb{M}_3^{(a,B_1,1)}(1,-1)]\otimes\mathbb{U}_{15}[\mathbb{Q}_0^{(u,A_1)}]\otimes\mathbb{F}_{26}[\mathbb{T}_1^{(k,B_1)}]}{8}-\frac{\sqrt{6}\mathbb{X}_{26}[\mathbb{M}_3^{(a,B_1,1)}(1,-1)]\otimes\mathbb{U}_{16}[\mathbb{T}_1^{(u,B_2)}]\otimes\mathbb{F}_{24}[\mathbb{Q}_2^{(k,A_2)}]}{8}\\&-\frac{\sqrt{10}\mathbb{X}_{27}[\mathbb{M}_3^{(a,B_1,2)}(1,-1)]\otimes\mathbb{U}_{15}[\mathbb{Q}_0^{(u,A_1)}]\otimes\mathbb{F}_{26}[\mathbb{T}_1^{(k,B_1)}]}{8}-\frac{\sqrt{10}\mathbb{X}_{27}[\mathbb{M}_3^{(a,B_1,2)}(1,-1)]\otimes\mathbb{U}_{16}[\mathbb{T}_1^{(u,B_2)}]\otimes\mathbb{F}_{24}[\mathbb{Q}_2^{(k,A_2)}]}{8}\\&-\frac{\sqrt{6}\mathbb{X}_{31}[\mathbb{M}_3^{(a,B_2,1)}(1,-1)]\otimes\mathbb{U}_{15}[\mathbb{Q}_0^{(u,A_1)}]\otimes\mathbb{F}_{27}[\mathbb{T}_1^{(k,B_2)}]}{8}-\frac{\sqrt{6}\mathbb{X}_{31}[\mathbb{M}_3^{(a,B_2,1)}(1,-1)]\otimes\mathbb{U}_{16}[\mathbb{T}_1^{(u,B_2)}]\otimes\mathbb{F}_{21}[\mathbb{Q}_0^{(k,A_1)}]}{8}\\&+\frac{\sqrt{10}\mathbb{X}_{32}[\mathbb{M}_3^{(a,B_2,2)}(1,-1)]\otimes\mathbb{U}_{15}[\mathbb{Q}_0^{(u,A_1)}]\otimes\mathbb{F}_{27}[\mathbb{T}_1^{(k,B_2)}]}{8}+\frac{\sqrt{10}\mathbb{X}_{32}[\mathbb{M}_3^{(a,B_2,2)}(1,-1)]\otimes\mathbb{U}_{16}[\mathbb{T}_1^{(u,B_2)}]\otimes\mathbb{F}_{21}[\mathbb{Q}_0^{(k,A_1)}]}{8}\end{aligned}$$

No. 135 $\hat{\mathbb{Q}}_3^{(A_1,1)}(1,-1)$ $[\mathrm{M}_1,\mathrm{B}_4]$

$$\hat{\mathbb{Z}}_{135} = \frac{\sqrt{3}\mathbb{X}_{26}[\mathbb{M}_3^{(a,B_1,1)}(1,-1)]\otimes\mathbb{Y}_{30}[\mathbb{T}_1^{(b,B_1)}]}{4} - \frac{\sqrt{5}\mathbb{X}_{27}[\mathbb{M}_3^{(a,B_1,2)}(1,-1)]\otimes\mathbb{Y}_{30}[\mathbb{T}_1^{(b,B_1)}]}{4} - \frac{\sqrt{3}\mathbb{X}_{31}[\mathbb{M}_3^{(a,B_2,1)}(1,-1)]\otimes\mathbb{Y}_{31}[\mathbb{T}_1^{(b,B_2)}]}{4} - \frac{\sqrt{5}\mathbb{X}_{32}[\mathbb{M}_3^{(a,B_2,2)}(1,-1)]\otimes\mathbb{Y}_{31}[\mathbb{T}_1^{(b,B_2)}]}{4}$$

$$\begin{aligned}\hat{\mathbb{Z}}_{135}(\boldsymbol{k}) = {} & \frac{\sqrt{6}\mathbb{X}_{26}[\mathbb{M}_3^{(a,B_1,1)}(1,-1)]\otimes\mathbb{U}_{15}[\mathbb{Q}_0^{(u,A_1)}]\otimes\mathbb{F}_{26}[\mathbb{T}_1^{(k,B_1)}]}{8} + \frac{\sqrt{6}\mathbb{X}_{26}[\mathbb{M}_3^{(a,B_1,1)}(1,-1)]\otimes\mathbb{U}_{16}[\mathbb{T}_1^{(u,B_2)}]\otimes\mathbb{F}_{24}[\mathbb{Q}_2^{(k,A_2)}]}{8} \\ & - \frac{\sqrt{10}\mathbb{X}_{27}[\mathbb{M}_3^{(a,B_1,2)}(1,-1)]\otimes\mathbb{U}_{15}[\mathbb{Q}_0^{(u,A_1)}]\otimes\mathbb{F}_{26}[\mathbb{T}_1^{(k,B_1)}]}{8} - \frac{\sqrt{10}\mathbb{X}_{27}[\mathbb{M}_3^{(a,B_1,2)}(1,-1)]\otimes\mathbb{U}_{16}[\mathbb{T}_1^{(u,B_2)}]\otimes\mathbb{F}_{24}[\mathbb{Q}_2^{(k,A_2)}]}{8} \\ & - \frac{\sqrt{6}\mathbb{X}_{31}[\mathbb{M}_3^{(a,B_2,1)}(1,-1)]\otimes\mathbb{U}_{15}[\mathbb{Q}_0^{(u,A_1)}]\otimes\mathbb{F}_{27}[\mathbb{T}_1^{(k,B_2)}]}{8} - \frac{\sqrt{6}\mathbb{X}_{31}[\mathbb{M}_3^{(a,B_2,1)}(1,-1)]\otimes\mathbb{U}_{16}[\mathbb{T}_1^{(u,B_2)}]\otimes\mathbb{F}_{21}[\mathbb{Q}_0^{(k,A_1)}]}{8} \\ & - \frac{\sqrt{10}\mathbb{X}_{32}[\mathbb{M}_3^{(a,B_2,2)}(1,-1)]\otimes\mathbb{U}_{15}[\mathbb{Q}_0^{(u,A_1)}]\otimes\mathbb{F}_{27}[\mathbb{T}_1^{(k,B_2)}]}{8} - \frac{\sqrt{10}\mathbb{X}_{32}[\mathbb{M}_3^{(a,B_2,2)}(1,-1)]\otimes\mathbb{U}_{16}[\mathbb{T}_1^{(u,B_2)}]\otimes\mathbb{F}_{21}[\mathbb{Q}_0^{(k,A_1)}]}{8}\end{aligned}$$

No. 136 $\hat{\mathbb{Q}}_3^{(A_1,2)}(1,-1)$ $[\mathrm{M}_1,\mathrm{B}_4]$

$$\hat{\mathbb{Z}}_{136} = \frac{\sqrt{5}\mathbb{X}_{26}[\mathbb{M}_3^{(a,B_1,1)}(1,-1)]\otimes\mathbb{Y}_{30}[\mathbb{T}_1^{(b,B_1)}]}{4} - \frac{\sqrt{3}\mathbb{X}_{27}[\mathbb{M}_3^{(a,B_1,2)}(1,-1)]\otimes\mathbb{Y}_{30}[\mathbb{T}_1^{(b,B_1)}]}{4} + \frac{\sqrt{5}\mathbb{X}_{31}[\mathbb{M}_3^{(a,B_2,1)}(1,-1)]\otimes\mathbb{Y}_{31}[\mathbb{T}_1^{(b,B_2)}]}{4} + \frac{\sqrt{3}\mathbb{X}_{32}[\mathbb{M}_3^{(a,B_2,2)}(1,-1)]\otimes\mathbb{Y}_{31}[\mathbb{T}_1^{(b,B_2)}]}{4}$$

$$\begin{aligned}\hat{\mathbb{Z}}_{136}(\boldsymbol{k}) = {} & \frac{\sqrt{10}\mathbb{X}_{26}[\mathbb{M}_3^{(a,B_1,1)}(1,-1)]\otimes\mathbb{U}_{15}[\mathbb{Q}_0^{(u,A_1)}]\otimes\mathbb{F}_{26}[\mathbb{T}_1^{(k,B_1)}]}{8} + \frac{\sqrt{10}\mathbb{X}_{26}[\mathbb{M}_3^{(a,B_1,1)}(1,-1)]\otimes\mathbb{U}_{16}[\mathbb{T}_1^{(u,B_2)}]\otimes\mathbb{F}_{24}[\mathbb{Q}_2^{(k,A_2)}]}{8} \\ & - \frac{\sqrt{6}\mathbb{X}_{27}[\mathbb{M}_3^{(a,B_1,2)}(1,-1)]\otimes\mathbb{U}_{15}[\mathbb{Q}_0^{(u,A_1)}]\otimes\mathbb{F}_{26}[\mathbb{T}_1^{(k,B_1)}]}{8} - \frac{\sqrt{6}\mathbb{X}_{27}[\mathbb{M}_3^{(a,B_1,2)}(1,-1)]\otimes\mathbb{U}_{16}[\mathbb{T}_1^{(u,B_2)}]\otimes\mathbb{F}_{24}[\mathbb{Q}_2^{(k,A_2)}]}{8} \\ & + \frac{\sqrt{10}\mathbb{X}_{31}[\mathbb{M}_3^{(a,B_2,1)}(1,-1)]\otimes\mathbb{U}_{15}[\mathbb{Q}_0^{(u,A_1)}]\otimes\mathbb{F}_{27}[\mathbb{T}_1^{(k,B_2)}]}{8} + \frac{\sqrt{10}\mathbb{X}_{31}[\mathbb{M}_3^{(a,B_2,1)}(1,-1)]\otimes\mathbb{U}_{16}[\mathbb{T}_1^{(u,B_2)}]\otimes\mathbb{F}_{21}[\mathbb{Q}_0^{(k,A_1)}]}{8} \\ & + \frac{\sqrt{6}\mathbb{X}_{32}[\mathbb{M}_3^{(a,B_2,2)}(1,-1)]\otimes\mathbb{U}_{15}[\mathbb{Q}_0^{(u,A_1)}]\otimes\mathbb{F}_{27}[\mathbb{T}_1^{(k,B_2)}]}{8} + \frac{\sqrt{6}\mathbb{X}_{32}[\mathbb{M}_3^{(a,B_2,2)}(1,-1)]\otimes\mathbb{U}_{16}[\mathbb{T}_1^{(u,B_2)}]\otimes\mathbb{F}_{21}[\mathbb{Q}_0^{(k,A_1)}]}{8}\end{aligned}$$

No. 137 $\hat{\mathbb{G}}_4^{(A_1,1)}(1,-1)$ $[\mathrm{M}_1,\mathrm{B}_4]$

$$\hat{\mathbb{Z}}_{137} = -\frac{\sqrt{5}\mathbb{X}_{26}[\mathbb{M}_3^{(a,B_1,1)}(1,-1)]\otimes\mathbb{Y}_{30}[\mathbb{T}_1^{(b,B_1)}]}{4} - \frac{\sqrt{3}\mathbb{X}_{27}[\mathbb{M}_3^{(a,B_1,2)}(1,-1)]\otimes\mathbb{Y}_{30}[\mathbb{T}_1^{(b,B_1)}]}{4} + \frac{\sqrt{5}\mathbb{X}_{31}[\mathbb{M}_3^{(a,B_2,1)}(1,-1)]\otimes\mathbb{Y}_{31}[\mathbb{T}_1^{(b,B_2)}]}{4} - \frac{\sqrt{3}\mathbb{X}_{32}[\mathbb{M}_3^{(a,B_2,2)}(1,-1)]\otimes\mathbb{Y}_{31}[\mathbb{T}_1^{(b,B_2)}]}{4}$$

$$\hat{\mathbb{Z}}_{137}(\boldsymbol{k}) = -\frac{\sqrt{10}\mathbb{X}_{26}[\mathbb{M}_3^{(a,B_1,1)}(1,-1)]\otimes\mathbb{U}_{15}[\mathbb{Q}_0^{(u,A_1)}]\otimes\mathbb{F}_{26}[\mathbb{T}_1^{(k,B_1)}]}{8} - \frac{\sqrt{10}\mathbb{X}_{26}[\mathbb{M}_3^{(a,B_1,1)}(1,-1)]\otimes\mathbb{U}_{16}[\mathbb{T}_1^{(u,B_2)}]\otimes\mathbb{F}_{24}[\mathbb{Q}_2^{(k,A_2)}]}{8}$$
$$- \frac{\sqrt{6}\mathbb{X}_{27}[\mathbb{M}_3^{(a,B_1,2)}(1,-1)]\otimes\mathbb{U}_{15}[\mathbb{Q}_0^{(u,A_1)}]\otimes\mathbb{F}_{26}[\mathbb{T}_1^{(k,B_1)}]}{8} - \frac{\sqrt{6}\mathbb{X}_{27}[\mathbb{M}_3^{(a,B_1,2)}(1,-1)]\otimes\mathbb{U}_{16}[\mathbb{T}_1^{(u,B_2)}]\otimes\mathbb{F}_{24}[\mathbb{Q}_2^{(k,A_2)}]}{8}$$
$$+ \frac{\sqrt{10}\mathbb{X}_{31}[\mathbb{M}_3^{(a,B_2,1)}(1,-1)]\otimes\mathbb{U}_{15}[\mathbb{Q}_0^{(u,A_1)}]\otimes\mathbb{F}_{27}[\mathbb{T}_1^{(k,B_2)}]}{8} + \frac{\sqrt{10}\mathbb{X}_{31}[\mathbb{M}_3^{(a,B_2,1)}(1,-1)]\otimes\mathbb{U}_{16}[\mathbb{T}_1^{(u,B_2)}]\otimes\mathbb{F}_{21}[\mathbb{Q}_0^{(k,A_1)}]}{8}$$
$$- \frac{\sqrt{6}\mathbb{X}_{32}[\mathbb{M}_3^{(a,B_2,2)}(1,-1)]\otimes\mathbb{U}_{15}[\mathbb{Q}_0^{(u,A_1)}]\otimes\mathbb{F}_{27}[\mathbb{T}_1^{(k,B_2)}]}{8} - \frac{\sqrt{6}\mathbb{X}_{32}[\mathbb{M}_3^{(a,B_2,2)}(1,-1)]\otimes\mathbb{U}_{16}[\mathbb{T}_1^{(u,B_2)}]\otimes\mathbb{F}_{21}[\mathbb{Q}_0^{(k,A_1)}]}{8}$$

No. 138 $\hat{\mathbb{Q}}_2^{(A_1,1)}(1,-1)$ $[\mathrm{M}_1,\mathrm{B}_4]$

$$\hat{\mathbb{Z}}_{138} = \mathbb{X}_{22}[\mathbb{M}_3^{(a,A_2,2)}(1,-1)]\otimes\mathbb{Y}_{32}[\mathbb{T}_2^{(b,A_2)}]$$

$$\hat{\mathbb{Z}}_{138}(\boldsymbol{k}) = \frac{\sqrt{2}\mathbb{X}_{22}[\mathbb{M}_3^{(a,A_2,2)}(1,-1)]\otimes\mathbb{U}_{15}[\mathbb{Q}_0^{(u,A_1)}]\otimes\mathbb{F}_{28}[\mathbb{T}_2^{(k,A_2)}]}{2} + \frac{\sqrt{2}\mathbb{X}_{22}[\mathbb{M}_3^{(a,A_2,2)}(1,-1)]\otimes\mathbb{U}_{16}[\mathbb{T}_1^{(u,B_2)}]\otimes\mathbb{F}_{22}[\mathbb{Q}_1^{(k,B_1)}]}{2}$$

No. 139 $\hat{\mathbb{Q}}_2^{(A_1,2)}(1,-1)$ $[\mathrm{M}_1,\mathrm{B}_4]$

$$\hat{\mathbb{Z}}_{139} = \mathbb{X}_{21}[\mathbb{M}_3^{(a,A_2,1)}(1,-1)]\otimes\mathbb{Y}_{32}[\mathbb{T}_2^{(b,A_2)}]$$

$$\hat{\mathbb{Z}}_{139}(\boldsymbol{k}) = \frac{\sqrt{2}\mathbb{X}_{21}[\mathbb{M}_3^{(a,A_2,1)}(1,-1)]\otimes\mathbb{U}_{15}[\mathbb{Q}_0^{(u,A_1)}]\otimes\mathbb{F}_{28}[\mathbb{T}_2^{(k,A_2)}]}{2} + \frac{\sqrt{2}\mathbb{X}_{21}[\mathbb{M}_3^{(a,A_2,1)}(1,-1)]\otimes\mathbb{U}_{16}[\mathbb{T}_1^{(u,B_2)}]\otimes\mathbb{F}_{22}[\mathbb{Q}_1^{(k,B_1)}]}{2}$$

No. 140 $\hat{\mathbb{Q}}_2^{(A_1,1)}(1,0)$ $[\mathrm{M}_1,\mathrm{B}_4]$

$$\hat{\mathbb{Z}}_{140} = \mathbb{X}_{35}[\mathbb{T}_2^{(a,A_1,1)}(1,0)]\otimes\mathbb{Y}_{29}[\mathbb{T}_0^{(b,A_1)}]$$

$$\hat{\mathbb{Z}}_{140}(\boldsymbol{k}) = \frac{\sqrt{2}\mathbb{X}_{35}[\mathbb{T}_2^{(a,A_1,1)}(1,0)]\otimes\mathbb{U}_{15}[\mathbb{Q}_0^{(u,A_1)}]\otimes\mathbb{F}_{25}[\mathbb{T}_0^{(k,A_1)}]}{2} + \frac{\sqrt{2}\mathbb{X}_{35}[\mathbb{T}_2^{(a,A_1,1)}(1,0)]\otimes\mathbb{U}_{16}[\mathbb{T}_1^{(u,B_2)}]\otimes\mathbb{F}_{23}[\mathbb{Q}_1^{(k,B_2)}]}{2}$$

No. 141 $\hat{\mathbb{Q}}_2^{(A_1,2)}(1,0)$ $[\mathrm{M}_1,\mathrm{B}_4]$

$$\hat{\mathbb{Z}}_{141} = \mathbb{X}_{36}[\mathbb{T}_2^{(a,A_1,2)}(1,0)]\otimes\mathbb{Y}_{29}[\mathbb{T}_0^{(b,A_1)}]$$

$$\hat{\mathbb{Z}}_{141}(\boldsymbol{k}) = \frac{\sqrt{2}\mathbb{X}_{36}[\mathbb{T}_2^{(a,A_1,2)}(1,0)]\otimes\mathbb{U}_{15}[\mathbb{Q}_0^{(u,A_1)}]\otimes\mathbb{F}_{25}[\mathbb{T}_0^{(k,A_1)}]}{2} + \frac{\sqrt{2}\mathbb{X}_{36}[\mathbb{T}_2^{(a,A_1,2)}(1,0)]\otimes\mathbb{U}_{16}[\mathbb{T}_1^{(u,B_2)}]\otimes\mathbb{F}_{23}[\mathbb{Q}_1^{(k,B_2)}]}{2}$$

No. 142 $\hat{\mathbb{Q}}_1^{(A_1)}(1,0)$ $[\mathrm{M}_1, \mathrm{B}_4]$

$$\hat{\mathbb{Z}}_{142} = \frac{\sqrt{2}\mathbb{X}_{28}[\mathbb{T}_2^{(a,B_1)}(1,0)] \otimes \mathbb{Y}_{30}[\mathbb{T}_1^{(b,B_1)}]}{2} + \frac{\sqrt{2}\mathbb{X}_{33}[\mathbb{T}_2^{(a,B_2)}(1,0)] \otimes \mathbb{Y}_{31}[\mathbb{T}_1^{(b,B_2)}]}{2}$$

$$\begin{aligned}\hat{\mathbb{Z}}_{142}(\boldsymbol{k}) = &\frac{\mathbb{X}_{28}[\mathbb{T}_2^{(a,B_1)}(1,0)] \otimes \mathbb{U}_{15}[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{26}[\mathbb{T}_1^{(k,B_1)}]}{2} + \frac{\mathbb{X}_{28}[\mathbb{T}_2^{(a,B_1)}(1,0)] \otimes \mathbb{U}_{16}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{24}[\mathbb{Q}_2^{(k,A_2)}]}{2} \\ &+ \frac{\mathbb{X}_{33}[\mathbb{T}_2^{(a,B_2)}(1,0)] \otimes \mathbb{U}_{15}[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{27}[\mathbb{T}_1^{(k,B_2)}]}{2} + \frac{\mathbb{X}_{33}[\mathbb{T}_2^{(a,B_2)}(1,0)] \otimes \mathbb{U}_{16}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{21}[\mathbb{Q}_0^{(k,A_1)}]}{2}\end{aligned}$$

No. 143 $\hat{\mathbb{G}}_2^{(A_1)}(1,0)$ $[\mathrm{M}_1, \mathrm{B}_4]$

$$\hat{\mathbb{Z}}_{143} = \frac{\sqrt{2}\mathbb{X}_{28}[\mathbb{T}_2^{(a,B_1)}(1,0)] \otimes \mathbb{Y}_{30}[\mathbb{T}_1^{(b,B_1)}]}{2} - \frac{\sqrt{2}\mathbb{X}_{33}[\mathbb{T}_2^{(a,B_2)}(1,0)] \otimes \mathbb{Y}_{31}[\mathbb{T}_1^{(b,B_2)}]}{2}$$

$$\begin{aligned}\hat{\mathbb{Z}}_{143}(\boldsymbol{k}) = &\frac{\mathbb{X}_{28}[\mathbb{T}_2^{(a,B_1)}(1,0)] \otimes \mathbb{U}_{15}[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{26}[\mathbb{T}_1^{(k,B_1)}]}{2} + \frac{\mathbb{X}_{28}[\mathbb{T}_2^{(a,B_1)}(1,0)] \otimes \mathbb{U}_{16}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{24}[\mathbb{Q}_2^{(k,A_2)}]}{2} \\ &- \frac{\mathbb{X}_{33}[\mathbb{T}_2^{(a,B_2)}(1,0)] \otimes \mathbb{U}_{15}[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{27}[\mathbb{T}_1^{(k,B_2)}]}{2} - \frac{\mathbb{X}_{33}[\mathbb{T}_2^{(a,B_2)}(1,0)] \otimes \mathbb{U}_{16}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{21}[\mathbb{Q}_0^{(k,A_1)}]}{2}\end{aligned}$$

No. 144 $\hat{\mathbb{Q}}_0^{(A_1)}(1,0)$ $[\mathrm{M}_1, \mathrm{B}_4]$

$$\hat{\mathbb{Z}}_{144} = \mathbb{X}_{23}[\mathbb{T}_2^{(a,A_2)}(1,0)] \otimes \mathbb{Y}_{32}[\mathbb{T}_2^{(b,A_2)}]$$

$$\hat{\mathbb{Z}}_{144}(\boldsymbol{k}) = \frac{\sqrt{2}\mathbb{X}_{23}[\mathbb{T}_2^{(a,A_2)}(1,0)] \otimes \mathbb{U}_{15}[\mathbb{Q}_0^{(u,A_1)}] \otimes \mathbb{F}_{28}[\mathbb{T}_2^{(k,A_2)}]}{2} + \frac{\sqrt{2}\mathbb{X}_{23}[\mathbb{T}_2^{(a,A_2)}(1,0)] \otimes \mathbb{U}_{16}[\mathbb{T}_1^{(u,B_2)}] \otimes \mathbb{F}_{22}[\mathbb{Q}_1^{(k,B_1)}]}{2}$$

Table 5: Atomic SAMB group.

group	bra	ket
M_1	$(p_x,\uparrow),(p_x,\downarrow),(p_y,\uparrow),(p_y,\downarrow),(p_z,\uparrow),(p_z,\downarrow)$	$(p_x,\uparrow),(p_x,\downarrow),(p_y,\uparrow),(p_y,\downarrow),(p_z,\uparrow),(p_z,\downarrow)$

Table 6: Atomic SAMB.

symbol	type	group	form
$\mathbb{X}_1$	$\mathbb{Q}_0^{(a,A_1)}$	M_1	$\begin{pmatrix} \frac{\sqrt{6}}{6} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{6}}{6} & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{6}}{6} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{6}}{6} & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{6} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{6} \end{pmatrix}$
$\mathbb{X}_2$	$\mathbb{Q}_2^{(a,A_1,1)}$	M_1	$\begin{pmatrix} -\frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{3} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{3} \end{pmatrix}$
$\mathbb{X}_3$	$\mathbb{Q}_2^{(a,A_1,2)}$	M_1	$\begin{pmatrix} \frac{1}{2} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{1}{2} & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{1}{2} & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{1}{2} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 \end{pmatrix}$
$\mathbb{X}_4$	$\mathbb{Q}_0^{(a,A_1)}(1,1)$	M_1	$\begin{pmatrix} 0 & 0 & -\frac{\sqrt{3}i}{6} & 0 & 0 & \frac{\sqrt{3}}{6} \\ 0 & 0 & 0 & \frac{\sqrt{3}i}{6} & -\frac{\sqrt{3}}{6} & 0 \\ \frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{6} \\ 0 & -\frac{\sqrt{3}i}{6} & 0 & 0 & -\frac{\sqrt{3}i}{6} & 0 \\ 0 & -\frac{\sqrt{3}}{6} & 0 & \frac{\sqrt{3}i}{6} & 0 & 0 \\ \frac{\sqrt{3}}{6} & 0 & \frac{\sqrt{3}i}{6} & 0 & 0 & 0 \end{pmatrix}$
$\mathbb{X}_5$	$\mathbb{Q}_2^{(a,A_1,1)}(1,-1)$	M_1	$\begin{pmatrix} 0 & 0 & -\frac{\sqrt{6}i}{6} & 0 & 0 & -\frac{\sqrt{6}}{12} \\ 0 & 0 & 0 & \frac{\sqrt{6}i}{6} & \frac{\sqrt{6}}{12} & 0 \\ \frac{\sqrt{6}i}{6} & 0 & 0 & 0 & 0 & \frac{\sqrt{6}i}{12} \\ 0 & -\frac{\sqrt{6}i}{6} & 0 & 0 & \frac{\sqrt{6}i}{12} & 0 \\ 0 & \frac{\sqrt{6}}{12} & 0 & -\frac{\sqrt{6}i}{12} & 0 & 0 \\ -\frac{\sqrt{6}}{12} & 0 & -\frac{\sqrt{6}i}{12} & 0 & 0 & 0 \end{pmatrix}$

continued ...

Table 6

symbol	type	group	form
$\mathbb{X}_6$	$\mathbb{Q}_2^{(a,A_1,2)}(1,-1)$	M_1	$\begin{pmatrix} 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{4} \\ 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{4} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{4} \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{4} & 0 \\ 0 & \frac{\sqrt{2}}{4} & 0 & \frac{\sqrt{2}i}{4} & 0 & 0 \\ -\frac{\sqrt{2}}{4} & 0 & \frac{\sqrt{2}i}{4} & 0 & 0 & 0 \end{pmatrix}$
$\mathbb{X}_7$	$\mathbb{Q}_2^{(a,A_2)}$	M_1	$\begin{pmatrix} 0 & 0 & \frac{1}{2} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{1}{2} & 0 & 0 \\ \frac{1}{2} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{1}{2} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 \end{pmatrix}$
$\mathbb{X}_8$	$\mathbb{Q}_2^{(a,B_1)}$	M_1	$\begin{pmatrix} 0 & 0 & 0 & 0 & \frac{1}{2} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{1}{2} \\ 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{1}{2} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{1}{2} & 0 & 0 & 0 & 0 \end{pmatrix}$
$\mathbb{X}_9$	$\mathbb{Q}_2^{(a,B_2)}$	M_1	$\begin{pmatrix} 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{1}{2} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{1}{2} \\ 0 & 0 & \frac{1}{2} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{1}{2} & 0 & 0 \end{pmatrix}$
$\mathbb{X}_{10}$	$\mathbb{Q}_2^{(a,A_2)}(1,-1)$	M_1	$\begin{pmatrix} 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{4} \\ 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{4} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{4} \\ 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{4} & 0 \\ 0 & -\frac{\sqrt{2}i}{4} & 0 & \frac{\sqrt{2}}{4} & 0 & 0 \\ -\frac{\sqrt{2}i}{4} & 0 & -\frac{\sqrt{2}}{4} & 0 & 0 & 0 \end{pmatrix}$

continued ...

Table 6

symbol	type	group	form
$\mathbb{X}_{11}$	$\mathbb{G}_1^{(a,A_2)}(1,0)$	M_1	$\begin{pmatrix} 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{4} \\ 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{4} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{4} \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{4} & 0 \\ 0 & -\frac{\sqrt{2}i}{4} & 0 & -\frac{\sqrt{2}}{4} & 0 & 0 \\ -\frac{\sqrt{2}i}{4} & 0 & \frac{\sqrt{2}}{4} & 0 & 0 & 0 \end{pmatrix}$
$\mathbb{X}_{12}$	$\mathbb{Q}_2^{(a,B_1)}(1,-1)$	M_1	$\begin{pmatrix} 0 & 0 & 0 & -\frac{\sqrt{2}i}{4} & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{2}i}{4} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{2}i}{4} & 0 & 0 & -\frac{\sqrt{2}i}{4} & 0 \\ \frac{\sqrt{2}i}{4} & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{4} \\ 0 & 0 & \frac{\sqrt{2}i}{4} & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{2}i}{4} & 0 & 0 \end{pmatrix}$
$\mathbb{X}_{13}$	$\mathbb{G}_1^{(a,B_1)}(1,0)$	M_1	$\begin{pmatrix} 0 & 0 & 0 & \frac{\sqrt{2}i}{4} & 0 & 0 \\ 0 & 0 & \frac{\sqrt{2}i}{4} & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{2}i}{4} & 0 & 0 & -\frac{\sqrt{2}i}{4} & 0 \\ -\frac{\sqrt{2}i}{4} & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{4} \\ 0 & 0 & \frac{\sqrt{2}i}{4} & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{2}i}{4} & 0 & 0 \end{pmatrix}$
$\mathbb{X}_{14}$	$\mathbb{Q}_2^{(a,B_2)}(1,-1)$	M_1	$\begin{pmatrix} 0 & 0 & 0 & -\frac{\sqrt{2}}{4} & \frac{\sqrt{2}i}{4} & 0 \\ 0 & 0 & \frac{\sqrt{2}}{4} & 0 & 0 & -\frac{\sqrt{2}i}{4} \\ 0 & \frac{\sqrt{2}}{4} & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{2}}{4} & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{2}i}{4} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{2}i}{4} & 0 & 0 & 0 & 0 \end{pmatrix}$
$\mathbb{X}_{15}$	$\mathbb{G}_1^{(a,B_2)}(1,0)$	M_1	$\begin{pmatrix} 0 & 0 & 0 & -\frac{\sqrt{2}}{4} & -\frac{\sqrt{2}i}{4} & 0 \\ 0 & 0 & \frac{\sqrt{2}}{4} & 0 & 0 & \frac{\sqrt{2}i}{4} \\ 0 & \frac{\sqrt{2}}{4} & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{2}}{4} & 0 & 0 & 0 & 0 & 0 \\ \frac{\sqrt{2}i}{4} & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{2}i}{4} & 0 & 0 & 0 & 0 \end{pmatrix}$

continued ...

Table 6

symbol	type	group	form
$\mathbb{X}_{16}$	$\mathbb{M}_1^{(a,A_2)}$	M_1	$\begin{pmatrix} 0 & 0 & -\frac{i}{2} & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{i}{2} & 0 & 0 \\ \frac{i}{2} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{i}{2} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 \end{pmatrix}$
$\mathbb{X}_{17}$	$\mathbb{M}_1^{(a,B_1)}$	M_1	$\begin{pmatrix} 0 & 0 & 0 & 0 & \frac{i}{2} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{i}{2} \\ 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 \\ -\frac{i}{2} & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{i}{2} & 0 & 0 & 0 & 0 \end{pmatrix}$
$\mathbb{X}_{18}$	$\mathbb{M}_1^{(a,B_2)}$	M_1	$\begin{pmatrix} 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & -\frac{i}{2} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{i}{2} \\ 0 & 0 & \frac{i}{2} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{i}{2} & 0 & 0 \end{pmatrix}$
$\mathbb{X}_{19}$	$\mathbb{M}_1^{(a,A_2)}(1,1)$	M_1	$\begin{pmatrix} -\frac{\sqrt{30}}{30} & 0 & 0 & 0 & 0 & \frac{\sqrt{30}}{20} \\ 0 & \frac{\sqrt{30}}{30} & 0 & 0 & \frac{\sqrt{30}}{20} & 0 \\ 0 & 0 & -\frac{\sqrt{30}}{30} & 0 & 0 & -\frac{\sqrt{30}i}{20} \\ 0 & 0 & 0 & \frac{\sqrt{30}}{30} & \frac{\sqrt{30}i}{20} & 0 \\ 0 & \frac{\sqrt{30}}{20} & 0 & -\frac{\sqrt{30}i}{20} & \frac{\sqrt{30}}{15} & 0 \\ \frac{\sqrt{30}}{20} & 0 & \frac{\sqrt{30}i}{20} & 0 & 0 & -\frac{\sqrt{30}}{15} \end{pmatrix}$
$\mathbb{X}_{20}$	$\mathbb{M}_1^{(a,A_2)}(1,-1)$	M_1	$\begin{pmatrix} \frac{\sqrt{6}}{6} & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{6}}{6} & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{6}}{6} & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{6}}{6} & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{6} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{6} \end{pmatrix}$

continued ...

Table 6

symbol	type	group	form
$\mathbb{X}_{21}$	$\mathbb{M}_3^{(a,A_2,1)}(1,-1)$	M_1	$\begin{pmatrix} -\frac{\sqrt{5}}{10} & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{10} \\ 0 & \frac{\sqrt{5}}{10} & 0 & 0 & -\frac{\sqrt{5}}{10} & 0 \\ 0 & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 & \frac{\sqrt{5}i}{10} \\ 0 & 0 & 0 & \frac{\sqrt{5}}{10} & -\frac{\sqrt{5}i}{10} & 0 \\ 0 & -\frac{\sqrt{5}}{10} & 0 & \frac{\sqrt{5}i}{10} & \frac{\sqrt{5}}{5} & 0 \\ -\frac{\sqrt{5}}{10} & 0 & -\frac{\sqrt{5}i}{10} & 0 & 0 & -\frac{\sqrt{5}}{5} \end{pmatrix}$
$\mathbb{X}_{22}$	$\mathbb{M}_3^{(a,A_2,2)}(1,-1)$	M_1	$\begin{pmatrix} \frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{6} \\ 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & \frac{\sqrt{3}}{6} & 0 \\ 0 & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & \frac{\sqrt{3}i}{6} \\ 0 & 0 & 0 & \frac{\sqrt{3}}{6} & -\frac{\sqrt{3}i}{6} & 0 \\ 0 & \frac{\sqrt{3}}{6} & 0 & \frac{\sqrt{3}i}{6} & 0 & 0 \\ \frac{\sqrt{3}}{6} & 0 & -\frac{\sqrt{3}i}{6} & 0 & 0 & 0 \end{pmatrix}$
$\mathbb{X}_{23}$	$\mathbb{T}_2^{(a,A_2)}(1,0)$	M_1	$\begin{pmatrix} \frac{\sqrt{6}}{6} & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{12} \\ 0 & -\frac{\sqrt{6}}{6} & 0 & 0 & -\frac{\sqrt{6}}{12} & 0 \\ 0 & 0 & -\frac{\sqrt{6}}{6} & 0 & 0 & -\frac{\sqrt{6}i}{12} \\ 0 & 0 & 0 & \frac{\sqrt{6}}{6} & \frac{\sqrt{6}i}{12} & 0 \\ 0 & -\frac{\sqrt{6}}{12} & 0 & -\frac{\sqrt{6}i}{12} & 0 & 0 \\ -\frac{\sqrt{6}}{12} & 0 & \frac{\sqrt{6}i}{12} & 0 & 0 & 0 \end{pmatrix}$
$\mathbb{X}_{24}$	$\mathbb{M}_1^{(a,B_1)}(1,1)$	M_1	$\begin{pmatrix} 0 & \frac{\sqrt{30}i}{30} & 0 & \frac{\sqrt{30}}{20} & 0 & 0 \\ -\frac{\sqrt{30}i}{30} & 0 & \frac{\sqrt{30}}{20} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{30}}{20} & 0 & -\frac{\sqrt{30}i}{15} & \frac{\sqrt{30}}{20} & 0 \\ \frac{\sqrt{30}}{20} & 0 & \frac{\sqrt{30}i}{15} & 0 & 0 & -\frac{\sqrt{30}}{20} \\ 0 & 0 & \frac{\sqrt{30}}{20} & 0 & 0 & \frac{\sqrt{30}i}{30} \\ 0 & 0 & 0 & -\frac{\sqrt{30}}{20} & -\frac{\sqrt{30}i}{30} & 0 \end{pmatrix}$
$\mathbb{X}_{25}$	$\mathbb{M}_1^{(a,B_1)}(1,-1)$	M_1	$\begin{pmatrix} 0 & -\frac{\sqrt{6}i}{6} & 0 & 0 & 0 & 0 \\ \frac{\sqrt{6}i}{6} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{6}i}{6} & 0 & 0 \\ 0 & 0 & \frac{\sqrt{6}i}{6} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}i}{6} \\ 0 & 0 & 0 & 0 & \frac{\sqrt{6}i}{6} & 0 \end{pmatrix}$

continued ...

Table 6

symbol	type	group	form
$\mathbb{X}_{26}$	$\mathbb{M}_3^{(a,B_1,1)}(1,-1)$	M_1	$\begin{pmatrix} 0 & \frac{\sqrt{5}i}{10} & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 \\ -\frac{\sqrt{5}i}{10} & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{5}}{10} & 0 & -\frac{\sqrt{5}i}{5} & -\frac{\sqrt{5}}{10} & 0 \\ -\frac{\sqrt{5}}{10} & 0 & \frac{\sqrt{5}i}{5} & 0 & 0 & \frac{\sqrt{5}}{10} \\ 0 & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 & \frac{\sqrt{5}i}{10} \\ 0 & 0 & 0 & \frac{\sqrt{5}}{10} & -\frac{\sqrt{5}i}{10} & 0 \end{pmatrix}$
$\mathbb{X}_{27}$	$\mathbb{M}_3^{(a,B_1,2)}(1,-1)$	M_1	$\begin{pmatrix} 0 & \frac{\sqrt{3}i}{6} & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 \\ -\frac{\sqrt{3}i}{6} & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & \frac{\sqrt{3}}{6} & 0 \\ -\frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{6} \\ 0 & 0 & \frac{\sqrt{3}}{6} & 0 & 0 & -\frac{\sqrt{3}i}{6} \\ 0 & 0 & 0 & -\frac{\sqrt{3}}{6} & \frac{\sqrt{3}i}{6} & 0 \end{pmatrix}$
$\mathbb{X}_{28}$	$\mathbb{T}_2^{(a,B_1)}(1,0)$	M_1	$\begin{pmatrix} 0 & \frac{\sqrt{6}i}{6} & 0 & \frac{\sqrt{6}}{12} & 0 & 0 \\ -\frac{\sqrt{6}i}{6} & 0 & \frac{\sqrt{6}}{12} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{6}}{12} & 0 & 0 & -\frac{\sqrt{6}}{12} & 0 \\ \frac{\sqrt{6}}{12} & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{12} \\ 0 & 0 & -\frac{\sqrt{6}}{12} & 0 & 0 & -\frac{\sqrt{6}i}{6} \\ 0 & 0 & 0 & \frac{\sqrt{6}}{12} & \frac{\sqrt{6}i}{6} & 0 \end{pmatrix}$
$\mathbb{X}_{29}$	$\mathbb{M}_1^{(a,B_2)}(1,1)$	M_1	$\begin{pmatrix} 0 & \frac{\sqrt{30}}{15} & 0 & -\frac{\sqrt{30}i}{20} & \frac{\sqrt{30}}{20} & 0 \\ \frac{\sqrt{30}}{15} & 0 & \frac{\sqrt{30}i}{20} & 0 & 0 & -\frac{\sqrt{30}}{20} \\ 0 & -\frac{\sqrt{30}i}{20} & 0 & -\frac{\sqrt{30}}{30} & 0 & 0 \\ \frac{\sqrt{30}i}{20} & 0 & -\frac{\sqrt{30}}{30} & 0 & 0 & 0 \\ \frac{\sqrt{30}}{20} & 0 & 0 & 0 & 0 & -\frac{\sqrt{30}}{30} \\ 0 & -\frac{\sqrt{30}}{20} & 0 & 0 & -\frac{\sqrt{30}}{30} & 0 \end{pmatrix}$
$\mathbb{X}_{30}$	$\mathbb{M}_1^{(a,B_2)}(1,-1)$	M_1	$\begin{pmatrix} 0 & \frac{\sqrt{6}}{6} & 0 & 0 & 0 & 0 \\ \frac{\sqrt{6}}{6} & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{6}}{6} & 0 & 0 \\ 0 & 0 & \frac{\sqrt{6}}{6} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{6} \\ 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{6} & 0 \end{pmatrix}$

continued ...

Table 6

symbol	type	group	form
$\mathbb{X}_{31}$	$\mathbb{M}_3^{(a,B_2,1)}(1,-1)$	M_1	$\begin{pmatrix} 0 & \frac{\sqrt{5}}{5} & 0 & \frac{\sqrt{5}i}{10} & -\frac{\sqrt{5}}{10} & 0 \\ \frac{\sqrt{5}}{5} & 0 & -\frac{\sqrt{5}i}{10} & 0 & 0 & \frac{\sqrt{5}}{10} \\ 0 & \frac{\sqrt{5}i}{10} & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 \\ -\frac{\sqrt{5}i}{10} & 0 & -\frac{\sqrt{5}}{10} & 0 & 0 & 0 \\ -\frac{\sqrt{5}}{10} & 0 & 0 & 0 & 0 & -\frac{\sqrt{5}}{10} \\ 0 & \frac{\sqrt{5}}{10} & 0 & 0 & -\frac{\sqrt{5}}{10} & 0 \end{pmatrix}$
$\mathbb{X}_{32}$	$\mathbb{M}_3^{(a,B_2,2)}(1,-1)$	M_1	$\begin{pmatrix} 0 & 0 & 0 & -\frac{\sqrt{3}i}{6} & -\frac{\sqrt{3}}{6} & 0 \\ 0 & 0 & \frac{\sqrt{3}i}{6} & 0 & 0 & \frac{\sqrt{3}}{6} \\ 0 & -\frac{\sqrt{3}i}{6} & 0 & \frac{\sqrt{3}}{6} & 0 & 0 \\ \frac{\sqrt{3}i}{6} & 0 & \frac{\sqrt{3}}{6} & 0 & 0 & 0 \\ -\frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}}{6} \\ 0 & \frac{\sqrt{3}}{6} & 0 & 0 & -\frac{\sqrt{3}}{6} & 0 \end{pmatrix}$
$\mathbb{X}_{33}$	$\mathbb{T}_2^{(a,B_2)}(1,0)$	M_1	$\begin{pmatrix} 0 & 0 & 0 & \frac{\sqrt{6}i}{12} & \frac{\sqrt{6}}{12} & 0 \\ 0 & 0 & -\frac{\sqrt{6}i}{12} & 0 & 0 & -\frac{\sqrt{6}}{12} \\ 0 & \frac{\sqrt{6}i}{12} & 0 & \frac{\sqrt{6}}{6} & 0 & 0 \\ -\frac{\sqrt{6}i}{12} & 0 & \frac{\sqrt{6}}{6} & 0 & 0 & 0 \\ \frac{\sqrt{6}}{12} & 0 & 0 & 0 & 0 & -\frac{\sqrt{6}}{6} \\ 0 & -\frac{\sqrt{6}}{12} & 0 & 0 & -\frac{\sqrt{6}}{6} & 0 \end{pmatrix}$
$\mathbb{X}_{34}$	$\mathbb{M}_3^{(a,A_1)}(1,-1)$	M_1	$\begin{pmatrix} 0 & 0 & \frac{\sqrt{3}}{6} & 0 & 0 & -\frac{\sqrt{3}i}{6} \\ 0 & 0 & 0 & -\frac{\sqrt{3}}{6} & \frac{\sqrt{3}i}{6} & 0 \\ \frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{6} \\ 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & \frac{\sqrt{3}}{6} & 0 \\ 0 & -\frac{\sqrt{3}i}{6} & 0 & \frac{\sqrt{3}}{6} & 0 & 0 \\ \frac{\sqrt{3}i}{6} & 0 & \frac{\sqrt{3}}{6} & 0 & 0 & 0 \end{pmatrix}$
$\mathbb{X}_{35}$	$\mathbb{T}_2^{(a,A_1,1)}(1,0)$	M_1	$\begin{pmatrix} 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{4} \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{4} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{4} \\ 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{4} & 0 \\ 0 & \frac{\sqrt{2}i}{4} & 0 & \frac{\sqrt{2}}{4} & 0 & 0 \\ -\frac{\sqrt{2}i}{4} & 0 & \frac{\sqrt{2}}{4} & 0 & 0 & 0 \end{pmatrix}$

continued ...

Table 6

symbol	type	group	form
$\mathbb{X}_{36}$	$\mathbb{T}_2^{(a,A_1,2)}(1,0)$	M_1	$\begin{pmatrix} 0 & 0 & -\frac{\sqrt{6}}{6} & 0 & 0 & -\frac{\sqrt{6}i}{12} \\ 0 & 0 & 0 & \frac{\sqrt{6}}{6} & \frac{\sqrt{6}i}{12} & 0 \\ -\frac{\sqrt{6}}{6} & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{12} \\ 0 & \frac{\sqrt{6}}{6} & 0 & 0 & \frac{\sqrt{6}}{12} & 0 \\ 0 & -\frac{\sqrt{6}i}{12} & 0 & \frac{\sqrt{6}}{12} & 0 & 0 \\ \frac{\sqrt{6}i}{12} & 0 & \frac{\sqrt{6}}{12} & 0 & 0 & 0 \end{pmatrix}$

Table 7: Cluster SAMB.

symbol	type	cluster	form
$\mathbb{Y}_1$	$\mathbb{Q}_0^{(s,A_1)}$	S_1	$\begin{pmatrix} \frac{\sqrt{2}}{2} & \frac{\sqrt{2}}{2} \end{pmatrix}$
$\mathbb{Y}_2$	$\mathbb{Q}_1^{(s,B_2)}$	S_1	$\begin{pmatrix} \frac{\sqrt{2}}{2} & -\frac{\sqrt{2}}{2} \end{pmatrix}$
$\mathbb{Y}_3$	$\mathbb{Q}_0^{(s,A_1)}$	S_2	$\begin{pmatrix} \frac{\sqrt{2}}{2} & \frac{\sqrt{2}}{2} \end{pmatrix}$
$\mathbb{Y}_4$	$\mathbb{Q}_1^{(s,B_2)}$	S_2	$\begin{pmatrix} \frac{\sqrt{2}}{2} & -\frac{\sqrt{2}}{2} \end{pmatrix}$
$\mathbb{Y}_5$	$\mathbb{Q}_0^{(b,A_1)}$	B_1	$\begin{pmatrix} \frac{\sqrt{2}}{2} & \frac{\sqrt{2}}{2} \end{pmatrix}$
$\mathbb{Y}_6$	$\mathbb{Q}_1^{(b,B_2)}$	B_1	$\begin{pmatrix} \frac{\sqrt{2}}{2} & -\frac{\sqrt{2}}{2} \end{pmatrix}$
$\mathbb{Y}_7$	$\mathbb{T}_0^{(b,A_1)}$	B_1	$\begin{pmatrix} \frac{\sqrt{2}i}{2} & \frac{\sqrt{2}i}{2} \end{pmatrix}$
$\mathbb{Y}_8$	$\mathbb{T}_1^{(b,B_2)}$	B_1	$\begin{pmatrix} \frac{\sqrt{2}i}{2} & -\frac{\sqrt{2}i}{2} \end{pmatrix}$
$\mathbb{Y}_9$	$\mathbb{Q}_0^{(b,A_1)}$	B_2	$\begin{pmatrix} \frac{1}{2} & \frac{1}{2} & \frac{1}{2} & \frac{1}{2} \end{pmatrix}$
$\mathbb{Y}_{10}$	$\mathbb{Q}_1^{(b,B_1)}$	B_2	$\begin{pmatrix} \frac{1}{2} & -\frac{1}{2} & \frac{1}{2} & -\frac{1}{2} \end{pmatrix}$
$\mathbb{Y}_{11}$	$\mathbb{Q}_1^{(b,B_2)}$	B_2	$\begin{pmatrix} \frac{1}{2} & -\frac{1}{2} & -\frac{1}{2} & \frac{1}{2} \end{pmatrix}$
$\mathbb{Y}_{12}$	$\mathbb{Q}_2^{(b,A_2)}$	B_2	$\begin{pmatrix} \frac{1}{2} & \frac{1}{2} & -\frac{1}{2} & -\frac{1}{2} \end{pmatrix}$
$\mathbb{Y}_{13}$	$\mathbb{T}_0^{(b,A_1)}$	B_2	$\begin{pmatrix} \frac{i}{2} & \frac{i}{2} & \frac{i}{2} & \frac{i}{2} \end{pmatrix}$
$\mathbb{Y}_{14}$	$\mathbb{T}_1^{(b,B_1)}$	B_2	$\begin{pmatrix} \frac{i}{2} & -\frac{i}{2} & \frac{i}{2} & -\frac{i}{2} \end{pmatrix}$
$\mathbb{Y}_{15}$	$\mathbb{T}_1^{(b,B_2)}$	B_2	$\begin{pmatrix} \frac{i}{2} & -\frac{i}{2} & -\frac{i}{2} & \frac{i}{2} \end{pmatrix}$
$\mathbb{Y}_{16}$	$\mathbb{T}_2^{(b,A_2)}$	B_2	$\begin{pmatrix} \frac{i}{2} & \frac{i}{2} & -\frac{i}{2} & -\frac{i}{2} \end{pmatrix}$
$\mathbb{Y}_{17}$	$\mathbb{Q}_0^{(b,A_1)}$	B_3	$\begin{pmatrix} \frac{1}{2} & \frac{1}{2} & \frac{1}{2} & \frac{1}{2} \end{pmatrix}$

continued ...

Table 7

symbol	type	cluster	form
$\mathbb{Y}_{18}$	$\mathbb{Q}_1^{(b,B_1)}$	B_3	$\begin{pmatrix} \frac{1}{2} & -\frac{1}{2} & \frac{1}{2} & -\frac{1}{2} \end{pmatrix}$
$\mathbb{Y}_{19}$	$\mathbb{Q}_1^{(b,B_2)}$	B_3	$\begin{pmatrix} \frac{1}{2} & -\frac{1}{2} & -\frac{1}{2} & \frac{1}{2} \end{pmatrix}$
$\mathbb{Y}_{20}$	$\mathbb{Q}_2^{(b,A_2)}$	B_3	$\begin{pmatrix} \frac{1}{2} & \frac{1}{2} & -\frac{1}{2} & -\frac{1}{2} \end{pmatrix}$
$\mathbb{Y}_{21}$	$\mathbb{T}_0^{(b,A_1)}$	B_3	$\begin{pmatrix} \frac{i}{2} & -\frac{i}{2} & -\frac{i}{2} & \frac{i}{2} \end{pmatrix}$
$\mathbb{Y}_{22}$	$\mathbb{T}_1^{(b,B_1)}$	B_3	$\begin{pmatrix} \frac{i}{2} & \frac{i}{2} & -\frac{i}{2} & -\frac{i}{2} \end{pmatrix}$
$\mathbb{Y}_{23}$	$\mathbb{T}_1^{(b,B_2)}$	B_3	$\begin{pmatrix} \frac{i}{2} & \frac{i}{2} & \frac{i}{2} & \frac{i}{2} \end{pmatrix}$
$\mathbb{Y}_{24}$	$\mathbb{T}_2^{(b,A_2)}$	B_3	$\begin{pmatrix} \frac{i}{2} & -\frac{i}{2} & \frac{i}{2} & -\frac{i}{2} \end{pmatrix}$
$\mathbb{Y}_{25}$	$\mathbb{Q}_0^{(b,A_1)}$	B_4	$\begin{pmatrix} \frac{1}{2} & \frac{1}{2} & \frac{1}{2} & \frac{1}{2} \end{pmatrix}$
$\mathbb{Y}_{26}$	$\mathbb{Q}_1^{(b,B_1)}$	B_4	$\begin{pmatrix} \frac{1}{2} & -\frac{1}{2} & \frac{1}{2} & -\frac{1}{2} \end{pmatrix}$
$\mathbb{Y}_{27}$	$\mathbb{Q}_1^{(b,B_2)}$	B_4	$\begin{pmatrix} \frac{1}{2} & -\frac{1}{2} & -\frac{1}{2} & \frac{1}{2} \end{pmatrix}$
$\mathbb{Y}_{28}$	$\mathbb{Q}_2^{(b,A_2)}$	B_4	$\begin{pmatrix} \frac{1}{2} & \frac{1}{2} & -\frac{1}{2} & -\frac{1}{2} \end{pmatrix}$
$\mathbb{Y}_{29}$	$\mathbb{T}_0^{(b,A_1)}$	B_4	$\begin{pmatrix} \frac{i}{2} & -\frac{i}{2} & -\frac{i}{2} & \frac{i}{2} \end{pmatrix}$
$\mathbb{Y}_{30}$	$\mathbb{T}_1^{(b,B_1)}$	B_4	$\begin{pmatrix} \frac{i}{2} & \frac{i}{2} & -\frac{i}{2} & -\frac{i}{2} \end{pmatrix}$
$\mathbb{Y}_{31}$	$\mathbb{T}_1^{(b,B_2)}$	B_4	$\begin{pmatrix} \frac{i}{2} & \frac{i}{2} & \frac{i}{2} & \frac{i}{2} \end{pmatrix}$
$\mathbb{Y}_{32}$	$\mathbb{T}_2^{(b,A_2)}$	B_4	$\begin{pmatrix} \frac{i}{2} & -\frac{i}{2} & \frac{i}{2} & -\frac{i}{2} \end{pmatrix}$

Table 8: Uniform SAMB.

symbol	type	cluster	form
$\mathbb{U}_1$	$\mathbb{Q}_0^{(s,A_1)}$	S_1	$\begin{pmatrix} \frac{\sqrt{2}}{2} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{2}}{2} & 0 & 0 \\ 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 \end{pmatrix}$
$\mathbb{U}_2$	$\mathbb{Q}_1^{(s,B_2)}$	S_1	$\begin{pmatrix} \frac{\sqrt{2}}{2} & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{2}}{2} & 0 & 0 \\ 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 \end{pmatrix}$

continued ...

Table 8

symbol	type	cluster	form
$\mathbb{U}_3$	$\mathbb{Q}_0^{(s,A_1)}$	S_2	$\begin{pmatrix} 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{2}}{2} & 0 \\ 0 & 0 & 0 & \frac{\sqrt{2}}{2} \end{pmatrix}$
$\mathbb{U}_4$	$\mathbb{Q}_1^{(s,B_2)}$	S_2	$\begin{pmatrix} 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{2}}{2} & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{2}}{2} \end{pmatrix}$
$\mathbb{U}_5$	$\mathbb{Q}_0^{(u,A_1)}$	B_1	$\begin{pmatrix} 0 & 0 & \frac{1}{2} & 0 \\ 0 & 0 & 0 & \frac{1}{2} \\ \frac{1}{2} & 0 & 0 & 0 \\ 0 & \frac{1}{2} & 0 & 0 \end{pmatrix}$
$\mathbb{U}_6$	$\mathbb{Q}_1^{(u,B_2)}$	B_1	$\begin{pmatrix} 0 & 0 & \frac{1}{2} & 0 \\ 0 & 0 & 0 & -\frac{1}{2} \\ \frac{1}{2} & 0 & 0 & 0 \\ 0 & -\frac{1}{2} & 0 & 0 \end{pmatrix}$
$\mathbb{U}_7$	$\mathbb{T}_0^{(u,A_1)}$	B_1	$\begin{pmatrix} 0 & 0 & -\frac{i}{2} & 0 \\ 0 & 0 & 0 & -\frac{i}{2} \\ \frac{i}{2} & 0 & 0 & 0 \\ 0 & \frac{i}{2} & 0 & 0 \end{pmatrix}$
$\mathbb{U}_8$	$\mathbb{T}_1^{(u,B_2)}$	B_1	$\begin{pmatrix} 0 & 0 & -\frac{i}{2} & 0 \\ 0 & 0 & 0 & \frac{i}{2} \\ \frac{i}{2} & 0 & 0 & 0 \\ 0 & -\frac{i}{2} & 0 & 0 \end{pmatrix}$
$\mathbb{U}_9$	$\mathbb{Q}_0^{(u,A_1)}$	B_2	$\begin{pmatrix} 0 & 0 & 0 & \frac{1}{2} \\ 0 & 0 & \frac{1}{2} & 0 \\ 0 & \frac{1}{2} & 0 & 0 \\ \frac{1}{2} & 0 & 0 & 0 \end{pmatrix}$
$\mathbb{U}_{10}$	$\mathbb{Q}_1^{(u,B_2)}$	B_2	$\begin{pmatrix} 0 & 0 & 0 & \frac{1}{2} \\ 0 & 0 & -\frac{1}{2} & 0 \\ 0 & -\frac{1}{2} & 0 & 0 \\ \frac{1}{2} & 0 & 0 & 0 \end{pmatrix}$

continued ...

Table 8

symbol	type	cluster	form
$\mathbb{U}_{11}$	$\mathbb{T}_0^{(u,A_1)}$	B_2	$\begin{pmatrix} 0 & 0 & 0 & -\frac{i}{2} \\ 0 & 0 & -\frac{i}{2} & 0 \\ 0 & \frac{i}{2} & 0 & 0 \\ \frac{i}{2} & 0 & 0 & 0 \end{pmatrix}$
$\mathbb{U}_{12}$	$\mathbb{T}_1^{(u,B_2)}$	B_2	$\begin{pmatrix} 0 & 0 & 0 & -\frac{i}{2} \\ 0 & 0 & \frac{i}{2} & 0 \\ 0 & -\frac{i}{2} & 0 & 0 \\ \frac{i}{2} & 0 & 0 & 0 \end{pmatrix}$
$\mathbb{U}_{13}$	$\mathbb{Q}_0^{(u,A_1)}$	B_3	$\begin{pmatrix} 0 & \frac{\sqrt{2}}{2} & 0 & 0 \\ \frac{\sqrt{2}}{2} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 \end{pmatrix}$
$\mathbb{U}_{14}$	$\mathbb{T}_1^{(u,B_2)}$	B_3	$\begin{pmatrix} 0 & -\frac{\sqrt{2}i}{2} & 0 & 0 \\ \frac{\sqrt{2}i}{2} & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 \end{pmatrix}$
$\mathbb{U}_{15}$	$\mathbb{Q}_0^{(u,A_1)}$	B_4	$\begin{pmatrix} 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{2}}{2} \\ 0 & 0 & \frac{\sqrt{2}}{2} & 0 \end{pmatrix}$
$\mathbb{U}_{16}$	$\mathbb{T}_1^{(u,B_2)}$	B_4	$\begin{pmatrix} 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{2}i}{2} \\ 0 & 0 & \frac{\sqrt{2}i}{2} & 0 \end{pmatrix}$

Table 9: Structure SAMB.

symbol	type	cluster	form
$\mathbb{F}_1$	$\mathbb{Q}_0^{(k,A_1)}$	B_1	$c_{001} + c_{002}$
$\mathbb{F}_2$	$\mathbb{Q}_1^{(k,B_2)}$	B_1	$c_{001} - c_{002}$

continued ...

Table 9

symbol	type	cluster	form
$\mathbb{F}_3$	$\mathbb{T}_0^{(k,A_1)}$	B_1	$s_{001} + s_{002}$
$\mathbb{F}_4$	$\mathbb{T}_1^{(k,B_2)}$	B_1	$s_{001} - s_{002}$
$\mathbb{F}_5$	$\mathbb{Q}_0^{(k,A_1)}$	B_2	$\frac{\sqrt{2}c_{003}}{2} + \frac{\sqrt{2}c_{004}}{2} + \frac{\sqrt{2}c_{005}}{2} + \frac{\sqrt{2}c_{006}}{2}$
$\mathbb{F}_6$	$\mathbb{Q}_1^{(k,B_1)}$	B_2	$\frac{\sqrt{2}c_{003}}{2} - \frac{\sqrt{2}c_{004}}{2} + \frac{\sqrt{2}c_{005}}{2} - \frac{\sqrt{2}c_{006}}{2}$
$\mathbb{F}_7$	$\mathbb{Q}_1^{(k,B_2)}$	B_2	$\frac{\sqrt{2}c_{003}}{2} - \frac{\sqrt{2}c_{004}}{2} - \frac{\sqrt{2}c_{005}}{2} + \frac{\sqrt{2}c_{006}}{2}$
$\mathbb{F}_8$	$\mathbb{Q}_2^{(k,A_2)}$	B_2	$\frac{\sqrt{2}c_{003}}{2} + \frac{\sqrt{2}c_{004}}{2} - \frac{\sqrt{2}c_{005}}{2} - \frac{\sqrt{2}c_{006}}{2}$
$\mathbb{F}_9$	$\mathbb{T}_0^{(k,A_1)}$	B_2	$\frac{\sqrt{2}s_{003}}{2} + \frac{\sqrt{2}s_{004}}{2} + \frac{\sqrt{2}s_{005}}{2} + \frac{\sqrt{2}s_{006}}{2}$
$\mathbb{F}_{10}$	$\mathbb{T}_1^{(k,B_1)}$	B_2	$\frac{\sqrt{2}s_{003}}{2} - \frac{\sqrt{2}s_{004}}{2} + \frac{\sqrt{2}s_{005}}{2} - \frac{\sqrt{2}s_{006}}{2}$
$\mathbb{F}_{11}$	$\mathbb{T}_1^{(k,B_2)}$	B_2	$\frac{\sqrt{2}s_{003}}{2} - \frac{\sqrt{2}s_{004}}{2} - \frac{\sqrt{2}s_{005}}{2} + \frac{\sqrt{2}s_{006}}{2}$
$\mathbb{F}_{12}$	$\mathbb{T}_2^{(k,A_2)}$	B_2	$\frac{\sqrt{2}s_{003}}{2} + \frac{\sqrt{2}s_{004}}{2} - \frac{\sqrt{2}s_{005}}{2} - \frac{\sqrt{2}s_{006}}{2}$
$\mathbb{F}_{13}$	$\mathbb{Q}_0^{(k,A_1)}$	B_3	$\frac{\sqrt{2}c_{007}}{2} + \frac{\sqrt{2}c_{008}}{2} + \frac{\sqrt{2}c_{009}}{2} + \frac{\sqrt{2}c_{010}}{2}$
$\mathbb{F}_{14}$	$\mathbb{Q}_1^{(k,B_1)}$	B_3	$\frac{\sqrt{2}c_{007}}{2} - \frac{\sqrt{2}c_{008}}{2} + \frac{\sqrt{2}c_{009}}{2} - \frac{\sqrt{2}c_{010}}{2}$
$\mathbb{F}_{15}$	$\mathbb{Q}_1^{(k,B_2)}$	B_3	$\frac{\sqrt{2}c_{007}}{2} - \frac{\sqrt{2}c_{008}}{2} - \frac{\sqrt{2}c_{009}}{2} + \frac{\sqrt{2}c_{010}}{2}$
$\mathbb{F}_{16}$	$\mathbb{Q}_2^{(k,A_2)}$	B_3	$\frac{\sqrt{2}c_{007}}{2} + \frac{\sqrt{2}c_{008}}{2} - \frac{\sqrt{2}c_{009}}{2} - \frac{\sqrt{2}c_{010}}{2}$
$\mathbb{F}_{17}$	$\mathbb{T}_0^{(k,A_1)}$	B_3	$\frac{\sqrt{2}s_{007}}{2} - \frac{\sqrt{2}s_{008}}{2} - \frac{\sqrt{2}s_{009}}{2} + \frac{\sqrt{2}s_{010}}{2}$
$\mathbb{F}_{18}$	$\mathbb{T}_1^{(k,B_1)}$	B_3	$\frac{\sqrt{2}s_{007}}{2} + \frac{\sqrt{2}s_{008}}{2} - \frac{\sqrt{2}s_{009}}{2} - \frac{\sqrt{2}s_{010}}{2}$
$\mathbb{F}_{19}$	$\mathbb{T}_1^{(k,B_2)}$	B_3	$\frac{\sqrt{2}s_{007}}{2} + \frac{\sqrt{2}s_{008}}{2} + \frac{\sqrt{2}s_{009}}{2} + \frac{\sqrt{2}s_{010}}{2}$
$\mathbb{F}_{20}$	$\mathbb{T}_2^{(k,A_2)}$	B_3	$\frac{\sqrt{2}s_{007}}{2} - \frac{\sqrt{2}s_{008}}{2} + \frac{\sqrt{2}s_{009}}{2} - \frac{\sqrt{2}s_{010}}{2}$
$\mathbb{F}_{21}$	$\mathbb{Q}_0^{(k,A_1)}$	B_4	$\frac{\sqrt{2}c_{011}}{2} + \frac{\sqrt{2}c_{012}}{2} + \frac{\sqrt{2}c_{013}}{2} + \frac{\sqrt{2}c_{014}}{2}$
$\mathbb{F}_{22}$	$\mathbb{Q}_1^{(k,B_1)}$	B_4	$\frac{\sqrt{2}c_{011}}{2} - \frac{\sqrt{2}c_{012}}{2} + \frac{\sqrt{2}c_{013}}{2} - \frac{\sqrt{2}c_{014}}{2}$
$\mathbb{F}_{23}$	$\mathbb{Q}_1^{(k,B_2)}$	B_4	$\frac{\sqrt{2}c_{011}}{2} - \frac{\sqrt{2}c_{012}}{2} - \frac{\sqrt{2}c_{013}}{2} + \frac{\sqrt{2}c_{014}}{2}$
$\mathbb{F}_{24}$	$\mathbb{Q}_2^{(k,A_2)}$	B_4	$\frac{\sqrt{2}c_{011}}{2} + \frac{\sqrt{2}c_{012}}{2} - \frac{\sqrt{2}c_{013}}{2} - \frac{\sqrt{2}c_{014}}{2}$
$\mathbb{F}_{25}$	$\mathbb{T}_0^{(k,A_1)}$	B_4	$\frac{\sqrt{2}s_{011}}{2} - \frac{\sqrt{2}s_{012}}{2} - \frac{\sqrt{2}s_{013}}{2} + \frac{\sqrt{2}s_{014}}{2}$
$\mathbb{F}_{26}$	$\mathbb{T}_1^{(k,B_1)}$	B_4	$\frac{\sqrt{2}s_{011}}{2} + \frac{\sqrt{2}s_{012}}{2} - \frac{\sqrt{2}s_{013}}{2} - \frac{\sqrt{2}s_{014}}{2}$
$\mathbb{F}_{27}$	$\mathbb{T}_1^{(k,B_2)}$	B_4	$\frac{\sqrt{2}s_{011}}{2} + \frac{\sqrt{2}s_{012}}{2} + \frac{\sqrt{2}s_{013}}{2} + \frac{\sqrt{2}s_{014}}{2}$
$\mathbb{F}_{28}$	$\mathbb{T}_2^{(k,A_2)}$	B_4	$\frac{\sqrt{2}s_{011}}{2} - \frac{\sqrt{2}s_{012}}{2} + \frac{\sqrt{2}s_{013}}{2} - \frac{\sqrt{2}s_{014}}{2}$

Table 10: Polar harmonics.

No.	symbol	rank	irrep.	mul.	comp.	form
1	$\mathbb{Q}_0^{(A_1)}$	0	A_1	–	–	1
2	$\mathbb{Q}_1^{(B_1)}$	1	B_1	–	–	x
3	$\mathbb{Q}_1^{(B_2)}$	1	B_2	–	–	y
4	$\mathbb{Q}_2^{(A_1,1)}$	2	A_1	1	–	$-\frac{x^2}{2}-\frac{y^2}{2}+z^2$
5	$\mathbb{Q}_2^{(A_1,2)}$	2	A_1	2	–	$\frac{\sqrt{3}(x-y)(x+y)}{2}$
6	$\mathbb{Q}_2^{(A_2)}$	2	A_2	–	–	$\sqrt{3}xy$
7	$\mathbb{Q}_2^{(B_1)}$	2	B_1	–	–	$\sqrt{3}xz$
8	$\mathbb{Q}_2^{(B_2)}$	2	B_2	–	–	$\sqrt{3}yz$

Table 11: Axial harmonics.

No.	symbol	rank	irrep.	mul.	comp.	form
1	$\mathbb{G}_1^{(A_2)}$	1	A_2	–	–	Z
2	$\mathbb{G}_1^{(B_1)}$	1	B_1	–	–	Y
3	$\mathbb{G}_1^{(B_2)}$	1	B_2	–	–	X
4	$\mathbb{G}_3^{(A_1)}$	3	A_1	–	–	$\sqrt{15}XYZ$
5	$\mathbb{G}_3^{(A_2,1)}$	3	A_2	1	–	$-\frac{Z\left(3X^2+3Y^2-2Z^2\right)}{2}$
6	$\mathbb{G}_3^{(A_2,2)}$	3	A_2	2	–	$\frac{\sqrt{15}Z(X-Y)(X+Y)}{2}$
7	$\mathbb{G}_3^{(B_1,1)}$	3	B_1	1	–	$-\frac{Y\left(3X^2-2Y^2+3Z^2\right)}{2}$
8	$\mathbb{G}_3^{(B_1,2)}$	3	B_1	2	–	$-\frac{\sqrt{15}Y(X-Z)(X+Z)}{2}$
9	$\mathbb{G}_3^{(B_2,1)}$	3	B_2	1	–	$\frac{X\left(2X^2-3Y^2-3Z^2\right)}{2}$
10	$\mathbb{G}_3^{(B_2,2)}$	3	B_2	2	–	$\frac{\sqrt{15}X(Y-Z)(Y+Z)}{2}$

- Group info.: Generator = $\{2_{001}|\frac{1}{2}0\frac{1}{2}\}$, $\{\mathrm{m}_{010}|\frac{1}{2}0\frac{1}{2}\}$

Table 12: Conjugacy class (point-group part).

rep. SO	symmetry operations
$\{1\|0\}$	$\{1\|0\}$
$\{2_{001}\|\frac{1}{2}0\frac{1}{2}\}$	$\{2_{001}\|\frac{1}{2}0\frac{1}{2}\}$
$\{\mathrm{m}_{010}\|\frac{1}{2}0\frac{1}{2}\}$	$\{\mathrm{m}_{010}\|\frac{1}{2}0\frac{1}{2}\}$
$\{\mathrm{m}_{100}\|0\}$	$\{\mathrm{m}_{100}\|0\}$

Table 13: Symmetry operations.

	No.	SO	No.	SO	No.	SO	No.	SO	No.	SO
	1	$\{1\|0\}$	2	$\{2_{001}\|\frac{1}{2}0\frac{1}{2}\}$	3	$\{\mathrm{m}_{010}\|\frac{1}{2}0\frac{1}{2}\}$	4	$\{\mathrm{m}_{100}\|0\}$		

Table 14: Character table (point-group part).

	1	2_{001}	m_{010}	m_{100}
A_1	1	1	1	1
A_2	1	1	-1	-1
B_1	1	-1	1	-1
B_2	1	-1	-1	1

Table 15: Parity conversion.

$\leftrightarrow$	$\leftrightarrow$	$\leftrightarrow$	$\leftrightarrow$
A_1 (A_2)	B_2 (B_1)	B_1 (B_2)	A_2 (A_1)

Table 16: Symmetric product, $[\Gamma \otimes \Gamma']_+$.

	A_1	A_2	B_1	B_2
A_1	A_1	A_2	B_1	B_2
A_2		A_1	B_2	B_1
B_1			A_1	A_2
B_2				A_1

Table 17: Anti-symmetric product, $[\Gamma \otimes \Gamma]_-$.

A_1	A_2	B_1	B_2
–	–	–	–

Table 18: Virtual-cluster sites.

No.	position	No.	position	No.	position	No.	position
1	$\begin{pmatrix}1 & 1 & 0\end{pmatrix}$	2	$\begin{pmatrix}-1 & -1 & 0\end{pmatrix}$	3	$\begin{pmatrix}1 & -1 & 0\end{pmatrix}$	4	$\begin{pmatrix}-1 & 1 & 0\end{pmatrix}$

Table 19: Virtual-cluster basis.

symbol	1	2	3	4
$\mathbb{Q}_0^{(A_1)}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$
$\mathbb{Q}_1^{(B_1)}$	$\frac{1}{2}$	$-\frac{1}{2}$	$\frac{1}{2}$	$-\frac{1}{2}$
$\mathbb{Q}_1^{(B_2)}$	$\frac{1}{2}$	$-\frac{1}{2}$	$-\frac{1}{2}$	$\frac{1}{2}$
$\mathbb{Q}_2^{(A_2)}$	$\frac{1}{2}$	$\frac{1}{2}$	$-\frac{1}{2}$	$-\frac{1}{2}$