# $He.2 \pmod 3$

| | blocks | defect | matrix |
|---|---|---|---|
| $G:$ | 1 | 3 | $13 \times 7$ |
| | 2 | 3 | $13 \times 7$ |
| | 3 | 2 | $9 \times 5$ |
| | 4 | 1 | $3 \times 2$ |
| | 5 | 1 | $3 \times 2$ |
| | 6 | 1 | $3 \times 2$ |
| | 7 | 0 | $22950_1 = \chi_{23+}, \varphi_{20+}$ |

| **Block 1:** | $\varphi_{1,0}$ | $\varphi_{6,0}$ | $\varphi_{9,0}$ | $\varphi_{13,0}$ | $\varphi_{14,1}$ | $\varphi_{15,1}$ | $\varphi_{19,0}$ |
|---|---|---|---|---|---|---|---|
| $1_1 = \chi_{1,0}$ | 1 | . | . | . | . | . | . |
| $680_1 = \chi_{6,0}$ | 1 | 1 | . | . | . | . | . |
| $1275_1 = \chi_{9,0}$ | . | . | 1 | . | . | . | . |
| $4352_1 = \chi_{14,0}$ | . | 1 | . | 1 | . | . | . |
| $6272_2 = \chi_{15,1}$ | . | . | . | . | . | 1 | . |
| $10880_1 = \chi_{22,0}$ | 1 | . | . | . | . | . | 1 |
| $11900_1 = \chi_{25,0}$ | 1 | 1 | 1 | 1 | . | 1 | . |
| $13720_2 = \chi_{26,1}$ | 1 | . | 1 | . | 1 | 1 | . |
| $17493_2 = \chi_{28,1}$ | 1 | . | 1 | 1 | . | 2 | . |
| $20825_1 = \chi_{29,0}$ | 1 | . | . | 1 | . | 1 | 1 |
| $21504_1 = \chi_{30,0}$ | 1 | 1 | . | 1 | . | 1 | 1 |
| $21504_3 = \chi_{31,0}$ | 1 | 1 | . | 1 | . | 1 | 1 |
| $23324_1 = \chi_{33,0}$ | 1 | . | . | . | 1 | 1 | 1 |

$\varphi_{1,0} = 1_1$
$\varphi_{6,0} = 679_1$
$\varphi_{9,0} = 1275_1$
$\varphi_{13,0} = 3673_1$
$\varphi_{14,1} = 6172_2$
$\varphi_{15,1} = 6272_2$
$\varphi_{19,0} = 10879_1$

| **Block 2:** | $\varphi_{1,1}$ | $\varphi_{6,1}$ | $\varphi_{9,1}$ | $\varphi_{13,1}$ | $\varphi_{14,0}$ | $\varphi_{15,0}$ | $\varphi_{19,1}$ |
|---|---|---|---|---|---|---|---|
| $1_2 = \chi_{1,1}$ | 1 | . | . | . | . | . | . |
| $680_2 = \chi_{6,1}$ | 1 | 1 | . | . | . | . | . |
| $1275_2 = \chi_{9,1}$ | . | . | 1 | . | . | . | . |
| $4352_2 = \chi_{14,1}$ | . | 1 | . | 1 | . | . | . |
| $6272_1 = \chi_{15,0}$ | . | . | . | . | . | 1 | . |
| $10880_2 = \chi_{22,1}$ | 1 | . | . | . | . | . | 1 |
| $11900_2 = \chi_{25,1}$ | 1 | 1 | 1 | 1 | . | 1 | . |
| $13720_1 = \chi_{26,0}$ | 1 | . | 1 | . | 1 | 1 | . |
| $17493_1 = \chi_{28,0}$ | 1 | . | 1 | 1 | . | 2 | . |
| $20825_2 = \chi_{29,1}$ | 1 | . | . | 1 | . | 1 | 1 |
| $21504_2 = \chi_{30,1}$ | 1 | 1 | . | 1 | . | 1 | 1 |
| $21504_4 = \chi_{31,1}$ | 1 | 1 | . | 1 | . | 1 | 1 |
| $23324_2 = \chi_{33,1}$ | 1 | . | . | . | 1 | 1 | 1 |

$\varphi_{1,1} = 1_2$
$\varphi_{6,1} = 679_2$
$\varphi_{9,1} = 1275_2$
$\varphi_{13,1} = 3673_2$
$\varphi_{14,0} = 6172_1$
$\varphi_{15,0} = 6272_1$
$\varphi_{19,1} = 10879_2$

| **Block 3:** | $\varphi_{2+}$ | $\varphi_{7+}$ | $\varphi_{10+}$ | $\varphi_{12,0}$ | $\varphi_{12,1}$ |
|---|---|---|---|---|---|
| $102_1 = \chi_{2+}$ | 1 | . | . | . | . |
| $2058_1 = \chi_{7+}$ | . | 1 | . | . | . |
| $2550_1 = \chi_{10+}$ | . | . | 1 | . | . |
| $1920_1 = \chi_{12,0}$ | . | . | . | 1 | . |
| $1920_2 = \chi_{12,1}$ | . | . | . | . | 1 |
| $4080_1 = \chi_{13,0}$ | 1 | 1 | . | 1 | . |
| $4080_2 = \chi_{13,1}$ | 1 | 1 | . | . | 1 |
| $6528_1 = \chi_{16,0}$ | . | 1 | 1 | 1 | . |
| $6528_2 = \chi_{16,1}$ | . | 1 | 1 | . | 1 |

$$\begin{aligned} \varphi_{2+} &= 102_1 \\ \varphi_{7+} &= 2058_1 \\ \varphi_{10+} &= 2550_1 \\ \varphi_{12,0} &= 1920_1 \\ \varphi_{12,1} &= 1920_2 \end{aligned}$$

| **Block 4:** | $\varphi_{4+}$ | $\varphi_{16+}$ |
|---|---|---|
| $306_1 = \chi_{4+}$ | 1 | . |
| $14994_1 = \chi_{17+}$ | . | 1 |
| $15300_1 = \chi_{20+}$ | 1 | 1 |

$$\begin{aligned} \varphi_{4+} &= 306_1 \\ \varphi_{16+} &= 14994_1 \end{aligned}$$

| **Block 5:** | $\varphi_{18,0}$ | $\varphi_{22,1}$ |
|---|---|---|
| $7650_1 = \chi_{19,0}$ | 1 | . |
| $14400_2 = \chi_{27,1}$ | . | 1 |
| $22050_2 = \chi_{32,1}$ | 1 | 1 |

$$\begin{aligned} \varphi_{18,0} &= 7650_1 \\ \varphi_{22,1} &= 14400_2 \end{aligned}$$

| **Block 6:** | $\varphi_{18,1}$ | $\varphi_{22,0}$ |
|---|---|---|
| $7650_2 = \chi_{19,1}$ | 1 | . |
| $14400_1 = \chi_{27,0}$ | . | 1 |
| $22050_1 = \chi_{32,0}$ | 1 | 1 |

$$\begin{aligned} \varphi_{18,1} &= 7650_2 \\ \varphi_{22,0} &= 14400_1 \end{aligned}$$