

## $A_{12.2} \pmod{7}$

	blocks	defect	matrix
$G :$	1	1	$7 \times 6$
	2	1	$7 \times 6$
	3	1	$7 \times 6$
	4	1	$7 \times 6$
	5	1	$7 \times 6$
	6	1	$7 \times 6$
	7	1	$7 \times 6$
	8	0	$154_1 = \chi_{6,0}, \varphi_{6,0}$
	9	0	$154_2 = \chi_{6,1}, \varphi_{6,1}$
	10	0	$462_1 = \chi_{12,0}, \varphi_{12,0}$
	11	0	$462_2 = \chi_{12,1}, \varphi_{12,1}$
	12	0	$462_3 = \chi_{13,0}, \varphi_{13,0}$
	13	0	$462_4 = \chi_{13,1}, \varphi_{13,1}$
	14	0	$616_1 = \chi_{14,0}, \varphi_{15,0}$
	15	0	$616_2 = \chi_{14,1}, \varphi_{15,1}$
	16	0	$945_1 = \chi_{16,0}, \varphi_{16,0}$
	17	0	$945_2 = \chi_{16,1}, \varphi_{16,1}$
	18	0	$2100_1 = \chi_{17+}, \varphi_{18+}$
	19	0	$1155_1 = \chi_{19,0}, \varphi_{21,0}$
	20	0	$1155_2 = \chi_{19,1}, \varphi_{21,1}$
	21	0	$1925_1 = \chi_{27,0}, \varphi_{27,0}$
	22	0	$1925_2 = \chi_{27,1}, \varphi_{27,1}$

	blocks	defect	matrix	
	23	0	$1925_3 = \chi_{28,0}, \varphi_{28,0}$	
	24	0	$1925_4 = \chi_{28,1}, \varphi_{28,1}$	
	25	0	$2079_1 = \chi_{29,0}, \varphi_{29,0}$	
	26	0	$2079_2 = \chi_{29,1}, \varphi_{29,1}$	
	27	0	$3080_1 = \chi_{34,0}, \varphi_{32,0}$	
	28	0	$3080_2 = \chi_{34,1}, \varphi_{32,1}$	
	29	0	$3696_1 = \chi_{37,0}, \varphi_{34,0}$	
	30	0	$3696_2 = \chi_{37,1}, \varphi_{34,1}$	
	31	0	$7700_1 = \chi_{38+}, \varphi_{35+}$	
	32	0	$4158_1 = \chi_{40,0}, \varphi_{37,0}$	
	33	0	$4158_2 = \chi_{40,1}, \varphi_{37,1}$	
	34	0	$5775_1 = \chi_{43,0}, \varphi_{38,0}$	
	35	0	$5775_2 = \chi_{43,1}, \varphi_{38,1}$	
	$2.G :$	36	1	$7 \times 6$
		37	1	$5 \times 3$
38		1	$5 \times 3$	
39		0	$1792_1 = \chi_{56,0}, \varphi_{51,0}$	
40		0	$1792_2 = \chi_{56,1}, \varphi_{51,1}$	
41		0	$5600_1 = \chi_{62,0}, \varphi_{55,0}$	
42		0	$5600_2 = \chi_{62,1}, \varphi_{55,1}$	
43		0	$7392_1 = \chi_{64,0}, \varphi_{56,0}$	
44		0	$7392_2 = \chi_{64,1}, \varphi_{56,1}$	

<b>Block 1:</b>	$\varphi_{1,0}$	$\varphi_{5,0}$	$\varphi_{11,1}$	$\varphi_{24,0}$	$\varphi_{25,1}$	$\varphi_{30,1}$
$1_1 = \chi_{1,0}$	1	.	.	.	.	.
$132_1 = \chi_{5,0}$	1	1	.	.	.	.
$330_2 = \chi_{11,1}$	.	.	1	.	.	.
$1485_1 = \chi_{24,0}$	.	1	.	1	.	.
$1728_2 = \chi_{26,1}$	.	.	1	.	1	.
$3520_1 = \chi_{35,0}$	.	.	.	1	.	1
$3564_2 = \chi_{36,1}$	.	.	.	.	1	1

$$\begin{aligned}
 \varphi_{1,0} &= 1_1 \\
 \varphi_{5,0} &= 131_1 \\
 \varphi_{11,1} &= 330_2 \\
 \varphi_{24,0} &= 1354_1 \\
 \varphi_{25,1} &= 1398_2 \\
 \varphi_{30,1} &= 2166_2
 \end{aligned}$$

<b>Block 2:</b>	$\varphi_{1,1}$	$\varphi_{5,1}$	$\varphi_{11,0}$	$\varphi_{24,1}$	$\varphi_{25,0}$	$\varphi_{30,0}$
$1_2 = \chi_{1,1}$	1	.	.	.	.	.
$132_2 = \chi_{5,1}$	1	1	.	.	.	.
$330_1 = \chi_{11,0}$	.	.	1	.	.	.
$1485_2 = \chi_{24,1}$	.	1	.	1	.	.
$1728_1 = \chi_{26,0}$	.	.	1	.	1	.
$3520_2 = \chi_{35,1}$	.	.	.	1	.	1
$3564_1 = \chi_{36,0}$	.	.	.	.	1	1

$$\begin{aligned} \varphi_{1,1} &= 1_2 \\ \varphi_{5,1} &= 131_2 \\ \varphi_{11,0} &= 330_1 \\ \varphi_{24,1} &= 1354_2 \\ \varphi_{25,0} &= 1398_1 \\ \varphi_{30,0} &= 2166_1 \end{aligned}$$

<b>Block 3:</b>	$\varphi_{2,0}$	$\varphi_{7,1}$	$\varphi_{9,0}$	$\varphi_{17,0}$	$\varphi_{31,1}$	$\varphi_{33,1}$
$11_1 = \chi_{2,0}$	1	.	.	.	.	.
$165_2 = \chi_{7,1}$	.	1	.	.	.	.
$297_1 = \chi_{9,0}$	1	.	1	.	.	.
$1320_1 = \chi_{20,0}$	.	.	1	1	.	.
$2376_2 = \chi_{31,1}$	.	1	.	.	1	.
$4455_2 = \chi_{41,1}$	.	.	.	1	.	1
$5632_2 = \chi_{42,1}$	.	.	.	.	1	1

$$\begin{aligned} \varphi_{2,0} &= 11_1 \\ \varphi_{7,1} &= 165_2 \\ \varphi_{9,0} &= 286_1 \\ \varphi_{17,0} &= 1034_1 \\ \varphi_{31,1} &= 2211_2 \\ \varphi_{33,1} &= 3421_2 \end{aligned}$$

<b>Block 4:</b>	$\varphi_{2,1}$	$\varphi_{7,0}$	$\varphi_{9,1}$	$\varphi_{17,1}$	$\varphi_{31,0}$	$\varphi_{33,0}$
$11_2 = \chi_{2,1}$	1	.	.	.	.	.
$165_1 = \chi_{7,0}$	.	1	.	.	.	.
$297_2 = \chi_{9,1}$	1	.	1	.	.	.
$1320_2 = \chi_{20,1}$	.	.	1	1	.	.
$2376_1 = \chi_{31,0}$	.	1	.	.	1	.
$4455_1 = \chi_{41,0}$	.	.	.	1	.	1
$5632_1 = \chi_{42,0}$	.	.	.	.	1	1

$$\begin{aligned} \varphi_{2,1} &= 11_2 \\ \varphi_{7,0} &= 165_1 \\ \varphi_{9,1} &= 286_2 \\ \varphi_{17,1} &= 1034_2 \\ \varphi_{31,0} &= 2211_1 \\ \varphi_{33,0} &= 3421_1 \end{aligned}$$

<b>Block 5:</b>	$\varphi_{3,0}$	$\varphi_{8,0}$	$\varphi_{10,1}$	$\varphi_{14,1}$	$\varphi_{20,1}$	$\varphi_{26,0}$
$54_1 = \chi_{3,0}$	1	.	.	.	.	.
$275_1 = \chi_{8,0}$	1	1	.	.	.	.
$320_2 = \chi_{10,1}$	.	.	1	.	.	.
$891_2 = \chi_{15,1}$	.	.	1	1	.	.
$1650_2 = \chi_{25,1}$	.	.	.	1	1	.
$2112_1 = \chi_{30,0}$	.	1	.	.	.	1
$2970_1 = \chi_{33,0}$	.	.	.	.	1	1

$$\begin{aligned} \varphi_{3,0} &= 54_1 \\ \varphi_{8,0} &= 221_1 \\ \varphi_{10,1} &= 320_2 \\ \varphi_{14,1} &= 571_2 \\ \varphi_{20,1} &= 1079_2 \\ \varphi_{26,0} &= 1891_1 \end{aligned}$$

<b>Block 6:</b>	$\varphi_{3,1}$	$\varphi_{8,1}$	$\varphi_{10,0}$	$\varphi_{14,0}$	$\varphi_{20,0}$	$\varphi_{26,1}$	
$54_2 = \chi_{3,1}$	1	.	.	.	.	.	$\varphi_{3,1} = 54_2$
$275_2 = \chi_{8,1}$	1	1	.	.	.	.	$\varphi_{8,1} = 221_2$
$320_1 = \chi_{10,0}$	.	.	1	.	.	.	$\varphi_{10,0} = 320_1$
$891_1 = \chi_{15,0}$	.	.	1	1	.	.	$\varphi_{14,0} = 571_1$
$1650_1 = \chi_{25,0}$	.	.	.	1	1	.	$\varphi_{20,0} = 1079_1$
$2112_2 = \chi_{30,1}$	.	1	.	.	.	1	$\varphi_{26,1} = 1891_2$
$2970_2 = \chi_{33,1}$	.	.	.	.	1	1	

<b>Block 7:</b>	$\varphi_{4,0}$	$\varphi_{4,1}$	$\varphi_{22,0}$	$\varphi_{22,1}$	$\varphi_{23,0}$	$\varphi_{23,1}$	
$55_1 = \chi_{4,0}$	1	.	.	.	.	.	$\varphi_{4,0} = 55_1$
$55_2 = \chi_{4,1}$	.	1	.	.	.	.	$\varphi_{4,1} = 55_2$
$2640_1 = \chi_{21+}$	.	.	1	1	.	.	$\varphi_{22,0} = 1320_1$
$1408_1 = \chi_{23,0}$	1	.	.	.	1	.	$\varphi_{22,1} = 1320_2$
$1408_2 = \chi_{23,1}$	.	1	.	.	.	1	$\varphi_{23,0} = 1353_1$
$2673_1 = \chi_{32,0}$	.	.	1	.	1	.	$\varphi_{23,1} = 1353_2$
$2673_2 = \chi_{32,1}$	.	.	.	1	.	1	

<b>Block 36:</b>	$\varphi_{39,0}$	$\varphi_{39,1}$	$\varphi_{48,0}$	$\varphi_{48,1}$	$\varphi_{52,0}$	$\varphi_{52,1}$	
$32_1 = \chi_{44,0}$	1	.	.	.	.	.	$\varphi_{39,0} = 32_1$
$32_2 = \chi_{44,1}$	.	1	.	.	.	.	$\varphi_{39,1} = 32_2$
$1760_1 = \chi_{51,0}$	.	.	1	.	.	.	$\varphi_{48,0} = 1760_1$
$1760_2 = \chi_{51,1}$	.	.	.	1	.	.	$\varphi_{48,1} = 1760_2$
$4224_1 = \chi_{57+}$	1	1	.	.	1	1	$\varphi_{52,0} = 2080_1$
$3840_1 = \chi_{61,0}$	.	.	1	.	1	.	$\varphi_{52,1} = 2080_2$
$3840_2 = \chi_{61,1}$	.	.	.	1	.	1	

<b>Block 37:</b>	$\varphi_{40+}$	$\varphi_{46+}$	$\varphi_{53+}$	
$320_3 = \chi_{45+}$	1	.	.	$\varphi_{40+} = 320_3$
$2816_1 = \chi_{49+}$	.	1	.	$\varphi_{46+} = 2816_1$
$5280_1 = \chi_{59+}$	1	.	1	$\varphi_{53+} = 4960_1$
$7776_1 = \chi_{65,0}$	.	1	1	
$7776_2 = \chi_{65,1}$	.	1	1	

<b>Block 38:</b>	$\varphi_{42+}$	$\varphi_{44+}$	$\varphi_{49+}$
$1408_3 = \chi_{47+}$	1	.	.
$3520_3 = \chi_{52+}$	1	1	.
$3520_4 = \chi_{54+}$	.	.	1
$5632_3 = \chi_{63,0}$	.	1	1
$5632_4 = \chi_{63,1}$	.	1	1

$$\begin{aligned} \varphi_{42+} &= 1408_1 \\ \varphi_{44+} &= 2112_1 \\ \varphi_{49+} &= 3520_1 \end{aligned}$$