

## $U_4(3).2_1 \pmod{5}$

	blocks	defect	matrix
$G :$	1	1	$5 \times 4$
	2	1	$5 \times 4$
	3	0	$35_1 = \chi_{3,0}, \varphi_{3,0}$
	4	0	$35_2 = \chi_{3,1}, \varphi_{3,1}$
	5	0	$35_3 = \chi_{4,0}, \varphi_{4,0}$
	6	0	$35_4 = \chi_{4,1}, \varphi_{4,1}$
	7	0	$90_1 = \chi_{5,0}, \varphi_{5,0}$
	8	0	$90_2 = \chi_{5,1}, \varphi_{5,1}$
	9	0	$140_1 = \chi_{6,0}, \varphi_{6,0}$
	10	0	$140_2 = \chi_{6,1}, \varphi_{6,1}$
	11	0	$210_1 = \chi_{8,0}, \varphi_{8,0}$
	12	0	$210_2 = \chi_{8,1}, \varphi_{8,1}$
	13	0	$560_1 = \chi_{9+}, \varphi_{9+}$
	14	0	$560_2 = \chi_{11+}, \varphi_{11+}$
	15	0	$315_1 = \chi_{13,0}, \varphi_{13,0}$
	16	0	$315_2 = \chi_{13,1}, \varphi_{13,1}$
	17	0	$315_3 = \chi_{14,0}, \varphi_{14,0}$
	18	0	$315_4 = \chi_{14,1}, \varphi_{14,1}$
	19	0	$420_1 = \chi_{15,0}, \varphi_{15,0}$
	20	0	$420_2 = \chi_{15,1}, \varphi_{15,1}$
	21	0	$560_3 = \chi_{16,0}, \varphi_{16,0}$
	22 = $\overline{21}$	0	$560_4 = \chi_{16,1}, \varphi_{16,1}$
	23	0	$640_1 = \chi_{17,0}, \varphi_{17,0}$
	24	0	$640_2 = \chi_{17,1}, \varphi_{17,1}$
	25 = $\overline{23}$	0	$640_3 = \chi_{18,0}, \varphi_{18,0}$
	26 = $\overline{24}$	0	$640_4 = \chi_{18,1}, \varphi_{18,1}$
$2.G :$	27	0	$20_1 = \chi_{21,0}, \varphi_{20,0}$
	28	0	$20_2 = \chi_{21,1}, \varphi_{20,1}$
	29	1	$5 \times 4$
	30 = $\overline{29}$	1	$5 \times 4$
	31	0	$70_1 = \chi_{24,0}, \varphi_{23,0}$
	32 = $\overline{31}$	0	$70_2 = \chi_{24,1}, \varphi_{23,1}$
	33	0	$140_3 = \chi_{25+}, \varphi_{24+}$
	34	0	$140_4 = \chi_{27+}, \varphi_{26+}$
	35	0	$120_1 = \chi_{29,0}, \varphi_{28,0}$
	36	0	$120_2 = \chi_{29,1}, \varphi_{28,1}$
	37	0	$210_3 = \chi_{30,0}, \varphi_{29,0}$
	38	0	$210_4 = \chi_{30,1}, \varphi_{29,1}$
	39 = $\overline{37}$	0	$210_5 = \chi_{31,0}, \varphi_{30,0}$
	40 = $\overline{38}$	0	$210_6 = \chi_{31,1}, \varphi_{30,1}$
$4.G :$	41	0	$540_1 = \chi_{34,0}, \varphi_{33,0}$
	42	0	$540_2 = \chi_{34,1}, \varphi_{33,1}$
	43	0	$560_5 = \chi_{35,0}, \varphi_{34,0}$
	44 = $\overline{43}$	0	$560_6 = \chi_{35,1}, \varphi_{34,1}$
	45	0	$630_1 = \chi_{36,0}, \varphi_{35,0}$
	46 = $\overline{45}$	0	$630_2 = \chi_{36,1}, \varphi_{35,1}$
	47	0	$640_5 = \chi_{37,0}, \varphi_{36,0}$
	48	0	$640_6 = \chi_{37,1}, \varphi_{36,1}$
	49 = $\overline{47}$	0	$640_7 = \chi_{38,0}, \varphi_{37,0}$
	50 = $\overline{48}$	0	$640_8 = \chi_{38,1}, \varphi_{37,1}$
	51	0	$20_3 = \chi_{40,0}, \varphi_{38,0}$
	52	0	$20_4 = \chi_{40,1}, \varphi_{38,1}$
	53 = 51*		
	54 = 52*		
	55	0	$120_3 = \chi_{41,0}, \varphi_{39,0}$
	56	0	$120_4 = \chi_{41,1}, \varphi_{39,1}$
	57 = 55*		
	58 = 56*		
59	0	$140_5 = \chi_{42,0}, \varphi_{40,0}$	
60	0	$140_6 = \chi_{42,1}, \varphi_{40,1}$	
61 = 59*			
62 = 60*			
63	1	$4 \times 2$	
64 = 63*			
65	0	$280_1 = \chi_{47,0}, \varphi_{45,0}$	
66	0	$280_2 = \chi_{47,1}, \varphi_{45,1}$	
67 = 65*			
68 = 66*			
69	0	$280_5 = \chi_{48,0}, \varphi_{46,0}$	
70	0	$280_6 = \chi_{48,1}, \varphi_{46,1}$	
71 = 69*			
72 = 70*			
73	0	$280_9 = \chi_{49,0}, \varphi_{47,0}$	
74	0	$280_{10} = \chi_{49,1}, \varphi_{47,1}$	
75 = 73*			
76 = 74*			
77	0	$420_3 = \chi_{50,0}, \varphi_{48,0}$	
78	0	$420_4 = \chi_{50,1}, \varphi_{48,1}$	
79 = 77*			
80 = 78*			

	blocks	defect	matrix
	81	0	$540_3 = \chi_{51,0}, \varphi_{49,0}$
	82	0	$540_4 = \chi_{51,1}, \varphi_{49,1}$
	83 = 81*		
	84 = 82*		
	85	0	$640_9 = \chi_{52,0}, \varphi_{50,0}$
	86	0	$640_{10} = \chi_{52,1}, \varphi_{50,1}$
	87 = 85*		
	88 = 86*		
	89 = $\overline{87}$	0	$640_{13} = \chi_{53,0}, \varphi_{51,0}$
	90 = $\overline{88}$	0	$640_{14} = \chi_{53,1}, \varphi_{51,1}$
	91 = 89*		
	92 = 90*		
	93	0	$840_1 = \chi_{54,0}, \varphi_{52,0}$
	94	0	$840_2 = \chi_{54,1}, \varphi_{52,1}$
	95 = 93*		
	96 = 94*		
$3_1.G :$	97	0	$30_1 = \chi_{56+}, \varphi_{53+}$
	98	1	$5 \times 4$
	99	0	$210_7 = \chi_{58+}, \varphi_{55+}$
	100	0	$210_8 = \chi_{59+}, \varphi_{56+}$
	101	0	$210_9 = \chi_{60+}, \varphi_{57+}$
	102	0	$420_7 = \chi_{61+}, \varphi_{58+}$
	103	0	$630_3 = \chi_{62+}, \varphi_{59+}$
	104	0	$720_1 = \chi_{64+}, \varphi_{61+}$
	105 = $\overline{104}$	0	$720_2 = \chi_{65+}, \varphi_{62+}$
	106	0	$840_5 = \chi_{67+}, \varphi_{65+}$
	107	0	$1260_1 = \chi_{68+}, \varphi_{66+}$
	108	0	$1890_1 = \chi_{71+}, \varphi_{67+}$
$6_1.G :$	109	1	$5 \times 4$
	110	0	$240_1 = \chi_{74+}, \varphi_{70+}$
	111	0	$420_8 = \chi_{76+}, \varphi_{72+}$
	112	0	$540_7 = \chi_{77+}, \varphi_{74+}$
	113 = $\overline{112}$	0	$540_8 = \chi_{78+}, \varphi_{75+}$
	114	0	$840_6 = \chi_{81+}, \varphi_{76+}$
	115	0	$1260_2 = \chi_{82+}, \varphi_{77+}$
	116	0	$1260_3 = \chi_{83+}, \varphi_{78+}$
	117 = $\overline{116}$	0	$1260_4 = \chi_{84+}, \varphi_{79+}$
	118	0	$1680_1 = \chi_{85+}, \varphi_{80+}$
	119	0	$1680_2 = \chi_{86+}, \varphi_{81+}$
$12_1.G :$	120	1	$5 \times 4$

	blocks	defect	matrix
	$121 = 120 * 7$ 122 $123 = 122 * 7$ 124 $125 = 124 * 7$ 126 $127 = 126 * 7$ 128 $129 = 128 * 7$ $130 = \overline{129}$ $131 = 130 * 7$ 132 $133 = 132 * 7$ 134 $135 = 134 * 7$	0 0 0 0 0 0 0 0 0 0 0 0	$240_2 = \chi_{88+}, \varphi_{83+}$ $840_7 = \chi_{91+}, \varphi_{87+}$ $840_9 = \chi_{92+}, \varphi_{88+}$ $960_1 = \chi_{93+}, \varphi_{89+}$ $960_3 = \chi_{94+}, \varphi_{90+}$ $1680_3 = \chi_{97+}, \varphi_{91+}$ $1680_5 = \chi_{98+}, \varphi_{92+}$
$3_2.G :$	136 137 $138 = \overline{137}$ 139 140 141 142 143 144	1 0 0 0 0 0 0 0 0	$5 \times 4$ $90_3 = \chi_{100+}, \varphi_{94+}$ $90_4 = \chi_{101+}, \varphi_{95+}$ $630_3 = \chi_{104+}, \varphi_{98+}$ $630_4 = \chi_{105+}, \varphi_{99+}$ $630_5 = \chi_{106+}, \varphi_{100+}$ $1260_1 = \chi_{107+}, \varphi_{102+}$ $1440_1 = \chi_{108+}, \varphi_{103+}$ $1890_1 = \chi_{111+}, \varphi_{104+}$
$6_2.G :$	145 146 147 $148 = \overline{147}$ 149 150 151 152	0 1 0 0 0 0 0 0 0	$180_1 = \chi_{112+}, \varphi_{105+}$ $5 \times 4$ $540_7 = \chi_{117+}, \varphi_{110+}$ $540_8 = \chi_{118+}, \varphi_{111+}$ $1080_1 = \chi_{120+}, \varphi_{112+}$ $1260_2 = \chi_{121+}, \varphi_{113+}$ $1440_2 = \chi_{122+}, \varphi_{114+}$ $2520_1 = \chi_{123+}, \varphi_{115+}$
$12_2.G :$	153 $154 = 153 * 7$ 155 $156 = 155 * 7$ $157 = \overline{156}$ $158 = 157 * 7$ 159 $160 = 159 * 7$	1 0 0 0 0	$5 \times 4$ $720_1 = \chi_{126+}, \varphi_{119+}$ $720_3 = \chi_{127+}, \varphi_{120+}$ $1080_2 = \chi_{130+}, \varphi_{122+}$

	blocks	defect	matrix
	161 162 = 161 * 7	0	2520 <sub>2</sub> = $\chi_{132+}, \varphi_{123+}$

<b>Block 1:</b>	$\varphi_{1,0}$	$\varphi_{2,0}$	$\varphi_{7,0}$	$\varphi_{19,0}$	
$1_1 = \chi_{1,0}$	1	.	.	.	$\varphi_{1,0} = 1_1$
$21_1 = \chi_{2,0}$	.	1	.	.	$\varphi_{2,0} = 21_1$
$189_1 = \chi_{7,0}$	1	.	1	.	$\varphi_{7,0} = 188_1$
$729_1 = \chi_{19,0}$	.	1	.	1	$\varphi_{19,0} = 708_1$
$896_1 = \chi_{20,0}$	.	.	1	1	

<b>Block 2:</b>	$\varphi_{1,1}$	$\varphi_{2,1}$	$\varphi_{7,1}$	$\varphi_{19,1}$	
$1_2 = \chi_{1,1}$	1	.	.	.	$\varphi_{1,1} = 1_2$
$21_2 = \chi_{2,1}$	.	1	.	.	$\varphi_{2,1} = 21_2$
$189_2 = \chi_{7,1}$	1	.	1	.	$\varphi_{7,1} = 188_2$
$729_2 = \chi_{19,1}$	.	1	.	1	$\varphi_{19,1} = 708_2$
$896_2 = \chi_{20,1}$	.	.	1	1	

<b>Block 29:</b>	$\varphi_{21,0}$	$\varphi_{22,0}$	$\varphi_{31,0}$	$\varphi_{32,0}$	
$56_1 = \chi_{22,0}$	1	.	.	.	$\varphi_{21,0} = 56_1$
$56_3 = \chi_{23,0}$	.	1	.	.	$\varphi_{22,0} = 56_3$
$504_1 = \chi_{32,0}$	1	.	1	.	$\varphi_{31,0} = 448_1$
$504_3 = \chi_{33,0}$	.	1	.	1	$\varphi_{32,0} = 448_3$
$896_4 = \chi_{39,1}$	.	.	1	1	

<b>Block 30:</b>	$\varphi_{21,1}$	$\varphi_{22,1}$	$\varphi_{31,1}$	$\varphi_{32,1}$	
$56_2 = \chi_{22,1}$	1	.	.	.	$\varphi_{21,1} = 56_2$
$56_4 = \chi_{23,1}$	.	1	.	.	$\varphi_{22,1} = 56_4$
$504_2 = \chi_{32,1}$	1	.	1	.	$\varphi_{31,1} = 448_2$
$504_4 = \chi_{33,1}$	.	1	.	1	$\varphi_{32,1} = 448_4$
$896_3 = \chi_{39,0}$	.	.	1	1	

<b>Blocks 63, 64:</b>	$\varphi_{41+}$	$\varphi_{43+}$	
$448_1 = \chi_{43+}$	1	.	$\varphi_{41+} = 448_5$
$448_3 = \chi_{45+}$	.	1	$\varphi_{43+} = 448_7$
$896_5 = \chi_{55,0}$	1	1	
$896_6 = \chi_{55,1}$	1	1	

<b>Block 98:</b>	$\varphi_{54+}$	$\varphi_{60+}$	$\varphi_{63+}$	$\varphi_{64+}$	
$42_1 = \chi_{57+}$	1	.	.	.	$\varphi_{54+} = 42_1$
$672_1 = \chi_{63+}$	.	1	.	.	$\varphi_{60+} = 672_1$
$768_1 = \chi_{66+}$	1	.	1	.	$\varphi_{63+} = 726_1$
$1458_1 = \chi_{69+}$	.	1	.	1	$\varphi_{64+} = 786_1$
$1512_1 = \chi_{70+}$	.	.	1	1	

<b>Block 109:</b>	$\varphi_{68+}$	$\varphi_{69+}$	$\varphi_{71+}$	$\varphi_{73+}$	
$12_1 = \chi_{72+}$	1	.	.	.	$\varphi_{68+} = 12_1$
$168_1 = \chi_{73+}$	1	1	.	.	$\varphi_{69+} = 156_1$
$252_1 = \chi_{75+}$	.	.	1	.	$\varphi_{71+} = 252_1$
$672_2 = \chi_{79+}$	.	1	.	1	$\varphi_{73+} = 516_1$
$768_2 = \chi_{80+}$	.	.	1	1	

<b>Block 120:</b>	$\varphi_{82+}$	$\varphi_{84+}$	$\varphi_{85+}$	$\varphi_{86+}$	
$168_2 = \chi_{87+}$	1	.	.	.	$\varphi_{82+} = 168_1$
$432_1 = \chi_{89+}$	1	1	.	.	$\varphi_{84+} = 264_1$
$768_3 = \chi_{90+}$	.	.	.	1	$\varphi_{85+} = 744_1$
$1008_1 = \chi_{95+}$	.	1	1	.	$\varphi_{86+} = 768_1$
$1512_2 = \chi_{96+}$	.	.	1	1	

<b>Block 136:</b>	$\varphi_{93+}$	$\varphi_{96+}$	$\varphi_{97+}$	$\varphi_{101+}$	
$72_1 = \chi_{99+}$	1	.	.	.	$\varphi_{93+} = 72_1$
$252_1 = \chi_{102+}$	.	1	.	.	$\varphi_{96+} = 252_1$
$378_1 = \chi_{103+}$	1	.	1	.	$\varphi_{97+} = 306_1$
$1458_1 = \chi_{109+}$	.	1	.	1	$\varphi_{101+} = 1206_1$
$1512_1 = \chi_{110+}$	.	.	1	1	

<b>Block 146:</b>	$\varphi_{106+}$	$\varphi_{107+}$	$\varphi_{108+}$	$\varphi_{109+}$
$252_2 = \chi_{113+}$	1	.	.	.
$252_3 = \chi_{114+}$	.	1	.	.
$252_4 = \chi_{115+}$	.	.	1	.
$252_5 = \chi_{116+}$	.	.	.	1
$1008_1 = \chi_{119+}$	1	1	1	1

$$\begin{aligned} \varphi_{106+} &= 252_2 \\ \varphi_{107+} &= 252_3 \\ \varphi_{108+} &= 252_4 \\ \varphi_{109+} &= 252_5 \end{aligned}$$

<b>Block 153:</b>	$\varphi_{116+}$	$\varphi_{117+}$	$\varphi_{118+}$	$\varphi_{121+}$
$72_2 = \chi_{124+}$	1	.	.	.
$432_1 = \chi_{125+}$	.	1	.	.
$1008_2 = \chi_{128+}$	.	1	1	.
$1008_4 = \chi_{129+}$	1	.	.	1
$1512_2 = \chi_{131+}$	.	.	1	1

$$\begin{aligned} \varphi_{116+} &= 72_2 \\ \varphi_{117+} &= 432_1 \\ \varphi_{118+} &= 576_1 \\ \varphi_{121+} &= 936_1 \end{aligned}$$