

$F_4(2) \pmod{7}$

	blocks	defect	matrix
$G :$	1	2	27×21
	2	0	$833_1 = \chi_2, \varphi_2$
	3	0	$21658_1 = \chi_7, \varphi_7$
	4	0	$22932_1 = \chi_8, \varphi_8$
	5	1	7×6
	6	1	7×6
	7	0	$63700_1 = \chi_{13}, \varphi_{13}$
	8	0	$142884_1 = \chi_{16}, \varphi_{16}$
	$9 = \overline{8}$	0	$142884_2 = \chi_{17}, \varphi_{17}$
	10	0	$162435_1 = \chi_{18}, \varphi_{18}$
	11	0	$162435_2 = \chi_{19}, \varphi_{19}$
	12	0	$216580_1 = \chi_{22}, \varphi_{22}$
	13	0	$216580_2 = \chi_{23}, \varphi_{23}$
	14	0	$249900_1 = \chi_{24}, \varphi_{24}$
	15	0	$269892_1 = \chi_{25}, \varphi_{25}$
	16	0	$270725_1 = \chi_{26}, \varphi_{26}$
	17	0	$519792_1 = \chi_{32}, \varphi_{32}$
	18	0	$541450_1 = \chi_{33}, \varphi_{33}$
	19	0	$541450_2 = \chi_{34}, \varphi_{34}$
	20	0	$541450_3 = \chi_{35}, \varphi_{35}$
	21	0	$541450_4 = \chi_{36}, \varphi_{36}$
	22	0	$584766_1 = \chi_{37}, \varphi_{37}$
	23	0	$812175_1 = \chi_{40}, \varphi_{40}$
	24	0	$812175_2 = \chi_{41}, \varphi_{41}$
	25	0	$877149_1 = \chi_{42}, \varphi_{43}$
	26	0	$877149_2 = \chi_{43}, \varphi_{44}$
	27	0	$1082900_1 = \chi_{45}, \varphi_{45}$
	28	0	$1299480_1 = \chi_{46}, \varphi_{48}$
	29	0	$1299480_2 = \chi_{47}, \varphi_{49}$
	30	0	$1949220_1 = \chi_{50}, \varphi_{51}$
	31	0	$1949220_2 = \chi_{51}, \varphi_{52}$
	32	0	$2165800_1 = \chi_{52}, \varphi_{53}$
	33	0	$2165800_2 = \chi_{53}, \varphi_{54}$
	34	0	$3411968_1 = \chi_{58}, \varphi_{57}$
	35	0	$3898440_1 = \chi_{59}, \varphi_{58}$
	36	0	$3898440_2 = \chi_{60}, \varphi_{59}$
	37	0	$4331600_1 = \chi_{61}, \varphi_{62}$
	38	0	$4331600_2 = \chi_{62}, \varphi_{63}$
	39	0	$4385745_1 = \chi_{63}, \varphi_{64}$
	40	0	$4385745_2 = \chi_{64}, \varphi_{65}$

	blocks	defect	matrix
	41	0	$4385745_3 = \chi_{65}, \varphi_{66}$
	42	0	$4385745_4 = \chi_{66}, \varphi_{67}$
	43	0	$5870592_1 = \chi_{72}, \varphi_{70}$
	44	0	$6497400_1 = \chi_{73}, \varphi_{72}$
	45	0	$6497400_2 = \chi_{74}, \varphi_{73}$
	46	0	$7309575_1 = \chi_{75}, \varphi_{76}$
	47	0	$7309575_2 = \chi_{76}, \varphi_{77}$
	48	0	$7894341_1 = \chi_{77}, \varphi_{78}$
	49	0	$8771490_1 = \chi_{80}, \varphi_{79}$
	50	0	$8771490_2 = \chi_{81}, \varphi_{80}$
	51	0	$11609325_1 = \chi_{86}, \varphi_{81}$
	52	0	$11609325_2 = \chi_{87}, \varphi_{82}$
	53	0	$14034384_1 = \chi_{90}, \varphi_{83}$
	54	0	$14619150_1 = \chi_{91}, \varphi_{84}$
	55	0	$14619150_2 = \chi_{92}, \varphi_{85}$
	56	0	$15181425_1 = \chi_{93}, \varphi_{86}$
	57	0	$17326400_1 = \chi_{95}, \varphi_{87}$
2.G :	58	2	27×21
	59	1	7×6
	60	1	7×6
	61	0	$43316_1 = \chi_{102}, \varphi_{94}$
	62	0	$433160_1 = \chi_{108}, \varphi_{104}$
	63	0	$433160_2 = \chi_{109}, \varphi_{105}$
	64	0	$1082900_2 = \chi_{115}, \varphi_{108}$
	65	0	$1082900_3 = \chi_{116}, \varphi_{109}$
	66	0	$1082900_4 = \chi_{117}, \varphi_{110}$
	67	0	$1146600_1 = \chi_{118}, \varphi_{111}$
	68	0	$1299480_3 = \chi_{121}, \varphi_{114}$
	69	0	$1299480_4 = \chi_{122}, \varphi_{115}$
	70	0	$1949220_3 = \chi_{127}, \varphi_{122}$
	71	0	$1949220_4 = \chi_{128}, \varphi_{123}$
	72	0	$2165800_3 = \chi_{129}, \varphi_{124}$
	73	0	$2772224_1 = \chi_{130}, \varphi_{125}$
	74	0	$2772224_2 = \chi_{131}, \varphi_{126}$
	75	0	$3572100_1 = \chi_{134}, \varphi_{129}$
	76	0	$3572100_2 = \chi_{135}, \varphi_{130}$
	77	0	$4798080_1 = \chi_{136}, \varphi_{135}$
	78	0	$4798080_2 = \chi_{137}, \varphi_{136}$
	79	0	$6497400_3 = \chi_{146}, \varphi_{139}$
	80	0	$6497400_4 = \chi_{147}, \varphi_{140}$

	blocks	defect	matrix
	81	0	$6930560_1 = \chi_{150}, \varphi_{141}$
	82	0	$6930560_2 = \chi_{151}, \varphi_{142}$
	83	0	$7017192_1 = \chi_{152}, \varphi_{143}$
	84	0	$7017192_2 = \chi_{153}, \varphi_{144}$
	85	0	$7429968_1 = \chi_{154}, \varphi_{145}$
	86	0	$8663200_1 = \chi_{155}, \varphi_{146}$
	87	0	$8663200_2 = \chi_{156}, \varphi_{147}$
	88	0	$10795680_1 = \chi_{159}, \varphi_{148}$
	89	0	$10795680_2 = \chi_{160}, \varphi_{149}$
	90	0	$12475008_1 = \chi_{163}, \varphi_{150}$
	91	0	$12475008_2 = \chi_{164}, \varphi_{151}$
	92	0	$13861120_1 = \chi_{165}, \varphi_{152}$
	93	0	$13861120_2 = \chi_{166}, \varphi_{153}$
	94	0	$16307200_1 = \chi_{169}, \varphi_{154}$

Block 1:	φ_1	φ_3	φ_4	φ_5	φ_6	φ_{11}	φ_{12}	φ_{14}	φ_{15}	φ_{20}	φ_{21}	φ_{27}	φ_{28}
$1_1 = \chi_1$	1	.	.	.	.	.	.	.	.	.	.	.	.
$1105_1 = \chi_3$	1	1	.	.	.	.	.	.	.	.	.	.	.
$1105_2 = \chi_4$	1	.	1	.	.	.	.	.	.	.	.	.	.
$1326_1 = \chi_5$.	.	.	1	.	.	.	.	.	.	.	.	.
$1377_1 = \chi_6$	1	.	.	.	.	.	.	.	.
$44200_1 = \chi_{11}$	1	1	.	.	.	.	.	.	.
$44200_2 = \chi_{12}$	1	.	1	.	.	.	.	.	.
$99450_1 = \chi_{14}$.	1	.	.	.	.	.	1	.	.	.	.	.
$99450_2 = \chi_{15}$.	.	1	.	.	.	.	.	1	.	.	.	.
$183600_1 = \chi_{20}$	1	.	.	.
$183600_2 = \chi_{21}$	1	.	.
$322218_1 = \chi_{27}$	1	1	1	.	.	.	.	.	.	.	.	.	.
$358020_1 = \chi_{30}$	1	.	.	.	.	.	1	.
$358020_2 = \chi_{31}$	1	.	.	.	.	.	1
$947700_1 = \chi_{44}$	1	1	1	.	.	.	.	.	.
$1342575_1 = \chi_{48}$.	.	.	1	.	.	.	1	.	.	.	.	.
$1342575_2 = \chi_{49}$.	.	.	1	.	.	.	.	1	.	.	.	.
$2828800_1 = \chi_{56}$	1	.	.	.	1	1	1	.
$2828800_2 = \chi_{57}$	1	.	.	1	1	.	1
$4526080_1 = \chi_{67}$.	1	.	.	.	.	.	1	.	.	.	.	.
$4526080_2 = \chi_{68}$.	.	1	.	.	.	.	.	1	.	.	.	.
$5640192_1 = \chi_{71}$.	.	.	1	.	.	.	.	.	1	1	.	.
$8055450_1 = \chi_{78}$	1	.	1	1	1	.
$8055450_2 = \chi_{79}$	1	1	1	.	1
$10740600_1 = \chi_{84}$	1	1	1	.
$10740600_2 = \chi_{85}$	1	1	.	1
$16777216_1 = \chi_{94}$	1	1	.	.

(Block 1:)	φ_{29}	φ_{42}	φ_{46}	φ_{47}	φ_{50}	φ_{60}	φ_{61}	φ_{71}	
$1_1 = \chi_1$	$\varphi_1 = 1_1$
$1105_1 = \chi_3$	$\varphi_3 = 1104_1$
$1105_2 = \chi_4$	$\varphi_4 = 1104_2$
$1326_1 = \chi_5$	$\varphi_5 = 1326_1$
$1377_1 = \chi_6$	$\varphi_6 = 1377_1$
$44200_1 = \chi_{11}$	$\varphi_{11} = 42823_1$
$44200_2 = \chi_{12}$	$\varphi_{12} = 42823_2$
$99450_1 = \chi_{14}$	$\varphi_{14} = 98346_1$
$99450_2 = \chi_{15}$	$\varphi_{15} = 98346_2$
$183600_1 = \chi_{20}$	$\varphi_{20} = 183600_1$
$183600_2 = \chi_{21}$	$\varphi_{21} = 183600_2$
$322218_1 = \chi_{27}$	1	.	.	.	.	.	.	.	$\varphi_{27} = 315197_1$
$358020_1 = \chi_{30}$	$\varphi_{28} = 315197_2$
$358020_2 = \chi_{31}$	$\varphi_{29} = 320009_1$
$947700_1 = \chi_{44}$.	1	.	.	.	.	.	.	$\varphi_{42} = 860677_1$
$1342575_1 = \chi_{48}$.	.	1	.	.	.	.	.	$\varphi_{46} = 1242903_1$
$1342575_2 = \chi_{49}$.	.	.	1	.	.	.	.	$\varphi_{47} = 1242903_2$
$2828800_1 = \chi_{56}$.	1	1	.	.	.	.	.	$\varphi_{50} = 1925183_1$
$2828800_2 = \chi_{57}$.	1	.	1	.	.	.	.	$\varphi_{60} = 4106621_1$
$4526080_1 = \chi_{67}$	1	.	.	.	.	1	.	.	$\varphi_{61} = 4106621_2$
$4526080_2 = \chi_{68}$	1	.	.	.	.	.	1	.	$\varphi_{71} = 5951582_1$
$5640192_1 = \chi_{71}$.	1	1	1	1	.	.	.	
$8055450_1 = \chi_{78}$.	.	1	.	1	1	.	.	
$8055450_2 = \chi_{79}$.	.	.	1	1	.	1	.	
$10740600_1 = \chi_{84}$	1	.	1	
$10740600_2 = \chi_{85}$	1	1	
$16777216_1 = \chi_{94}$	1	.	.	.	1	1	1	1	

Block 5:	φ_9	φ_{30}	φ_{38}	φ_{55}	φ_{68}	φ_{75}	
$23205_1 = \chi_9$	1	.	.	.	.	.	$\varphi_9 = 23205_1$
$348075_1 = \chi_{28}$	.	1	.	.	.	.	$\varphi_{30} = 348075_1$
$626535_1 = \chi_{38}$	1	.	1	.	.	.	$\varphi_{38} = 603330_1$
$2784600_1 = \chi_{54}$	.	.	1	1	.	.	$\varphi_{55} = 2181270_1$
$5012280_1 = \chi_{69}$	.	1	.	.	1	.	$\varphi_{68} = 4664205_1$
$9398025_2 = \chi_{83}$	.	.	.	1	.	1	$\varphi_{75} = 7216755_2$
$11880960_2 = \chi_{89}$	.	.	.	.	1	1	

(Block 58:)	φ_{107}	φ_{116}	φ_{117}	φ_{131}	φ_{132}	φ_{133}	φ_{134}	φ_{137}	φ_{138}
$52_1 = \chi_{96}$
$22100_1 = \chi_{101}$
$46800_1 = \chi_{103}$
$55080_1 = \chi_{104}$
$55080_2 = \chi_{105}$
$424320_1 = \chi_{106}$
$424320_2 = \chi_{107}$
$565760_1 = \chi_{110}$
$572832_1 = \chi_{111}$
$572832_2 = \chi_{112}$
$716040_1 = \chi_{113}$
$716040_2 = \chi_{114}$	1	.	.	.	.	.	.	.	.
$1591200_1 = \chi_{125}$.	1	.	.	.	.	.	.	.
$1591200_2 = \chi_{126}$.	.	1	.	.	.	.	.	.
$5370300_1 = \chi_{142}$	1	.	.	.	.
$5370300_2 = \chi_{143}$	1	.	.	.
$5728320_1 = \chi_{144}$	1	.
$5728320_2 = \chi_{145}$	1	.	.	.	.	.	.	1	.
$6873984_1 = \chi_{148}$.	1	.	.	.	.	1	.	.
$6873984_2 = \chi_{149}$	1	.	1	.	.	.	1	.	.
$9052160_1 = \chi_{157}$.	.	.	1	.	.	.	1	.
$9547200_1 = \chi_{158}$.	.	.	1	.	.	.	.	1
$11456640_1 = \chi_{161}$.	1	.	.	1	.	.	.	1
$11456640_2 = \chi_{162}$.	.	1	.	.	1	.	.	1
$15163200_1 = \chi_{167}$	1	.	.	1	.	.	1	1	.
$15163200_2 = \chi_{168}$	1	1	.	.	1
$16777216_2 = \chi_{170}$.	1	1	1	.	.	1	.	1

$\varphi_{88} = 52_1$	$\varphi_{106} = 661012_1$
$\varphi_{93} = 22100_1$	$\varphi_{107} = 661012_2$
$\varphi_{95} = 46800_1$	$\varphi_{116} = 1368876_1$
$\varphi_{96} = 55028_1$	$\varphi_{117} = 1368876_2$
$\varphi_{97} = 55028_2$	$\varphi_{131} = 4006952_1$
$\varphi_{98} = 167296_1$	$\varphi_{132} = 4676972_1$
$\varphi_{99} = 167296_2$	$\varphi_{133} = 4676972_2$
$\varphi_{100} = 257024_1$	$\varphi_{134} = 4789016_1$
$\varphi_{101} = 257024_2$	$\varphi_{137} = 5045208_1$
$\varphi_{102} = 269008_1$	$\varphi_{138} = 5243496_1$
$\varphi_{103} = 296752_1$	

Block 59:	φ_{89}	φ_{91}	φ_{112}	φ_{118}	φ_{120}	φ_{127}
$2380_1 = \chi_{97}$	1	.	.	.	.	.
$12376_1 = \chi_{99}$	.	1	.	.	.	.
$1233792_2 = \chi_{120}$	.	1	1	.	.	.
$1503684_1 = \chi_{123}$	1	.	.	1	.	.
$2784600_4 = \chi_{133}$	.	.	1	.	1	.
$4950400_2 = \chi_{139}$	.	.	.	1	.	1
$5012280_4 = \chi_{141}$	.	.	.	.	1	1

$$\begin{aligned} \varphi_{89} &= 2380_1 \\ \varphi_{91} &= 12376_1 \\ \varphi_{112} &= 1221416_1 \\ \varphi_{118} &= 1501304_1 \\ \varphi_{120} &= 1563184_1 \\ \varphi_{127} &= 3449096_1 \end{aligned}$$

Block 60:	φ_{90}	φ_{92}	φ_{113}	φ_{119}	φ_{121}	φ_{128}
$2380_2 = \chi_{98}$	1	.	.	.	.	.
$12376_2 = \chi_{100}$	.	1	.	.	.	.
$1233792_1 = \chi_{119}$	.	1	1	.	.	.
$1503684_2 = \chi_{124}$	1	.	.	1	.	.
$2784600_3 = \chi_{132}$	.	.	1	.	1	.
$4950400_1 = \chi_{138}$	.	.	.	1	.	1
$5012280_3 = \chi_{140}$	.	.	.	.	1	1

$$\begin{aligned} \varphi_{90} &= 2380_2 \\ \varphi_{92} &= 12376_2 \\ \varphi_{113} &= 1221416_2 \\ \varphi_{119} &= 1501304_2 \\ \varphi_{121} &= 1563184_2 \\ \varphi_{128} &= 3449096_2 \end{aligned}$$