

$F_4(2).2 \pmod{13}$

	blocks	defect	matrix
$G :$	1	1	13×12
	2	1	13×12
	3	0	$2210_1 = \chi_{3+}, \varphi_{3+}$
	4	0	$1326_1 = \chi_{5,0}, \varphi_{5,0}$
	5	0	$1326_2 = \chi_{5,1}, \varphi_{5,1}$
	6	0	$21658_1 = \chi_{7,0}, \varphi_{7,0}$
	7	0	$21658_2 = \chi_{7,1}, \varphi_{7,1}$
	8	0	$22932_1 = \chi_{8,0}, \varphi_{8,0}$
	9	0	$22932_2 = \chi_{8,1}, \varphi_{8,1}$
	10	0	$46410_1 = \chi_{9+}, \varphi_{9+}$
	11	0	$88400_1 = \chi_{11+}, \varphi_{11+}$
	12	0	$63700_1 = \chi_{13,0}, \varphi_{13,0}$
	$13 = \overline{12}$	0	$63700_2 = \chi_{13,1}, \varphi_{13,1}$
	14	0	$198900_1 = \chi_{14+}, \varphi_{14+}$
	15	0	$324870_1 = \chi_{18+}, \varphi_{18+}$
	16	0	$433160_1 = \chi_{22+}, \varphi_{22+}$
	17	0	$270725_1 = \chi_{26,0}, \varphi_{26,0}$
	18	0	$270725_2 = \chi_{26,1}, \varphi_{26,1}$
	19	0	$322218_1 = \chi_{27,0}, \varphi_{27,0}$
	20	0	$322218_2 = \chi_{27,1}, \varphi_{27,1}$
	21	0	$696150_1 = \chi_{28+}, \varphi_{28+}$
	22	0	$716040_1 = \chi_{30+}, \varphi_{30+}$
	23	0	$519792_1 = \chi_{32,0}, \varphi_{32,0}$
	24	0	$519792_2 = \chi_{32,1}, \varphi_{32,1}$
	25	0	$1082900_1 = \chi_{33+}, \varphi_{33+}$
	26	0	$1082900_2 = \chi_{35+}, \varphi_{35+}$
	27	0	$584766_1 = \chi_{37,0}, \varphi_{37,0}$
	28	0	$584766_2 = \chi_{37,1}, \varphi_{37,1}$
	29	0	$1253070_1 = \chi_{38+}, \varphi_{38+}$
	30	0	$1624350_1 = \chi_{40+}, \varphi_{40+}$
	31	0	$877149_1 = \chi_{42,0}, \varphi_{42,0}$
	32	0	$877149_2 = \chi_{42,1}, \varphi_{42,1}$
	33	0	$877149_3 = \chi_{43,0}, \varphi_{43,0}$
	34	0	$877149_4 = \chi_{43,1}, \varphi_{43,1}$
	35	0	$947700_1 = \chi_{44,0}, \varphi_{44,0}$
	36	0	$947700_2 = \chi_{44,1}, \varphi_{44,1}$
	37	0	$1082900_3 = \chi_{45,0}, \varphi_{45,0}$
	38	0	$1082900_4 = \chi_{45,1}, \varphi_{45,1}$
	39	0	$2598960_1 = \chi_{46+}, \varphi_{46+}$
	40	0	$2685150_1 = \chi_{48+}, \varphi_{48+}$

	blocks	defect	matrix
	41	0	$3898440_1 = \chi_{50+}, \varphi_{50+}$
	42	0	$4331600_1 = \chi_{52+}, \varphi_{52+}$
	43	0	$5569200_1 = \chi_{54+}, \varphi_{54+}$
	44	0	$5657600_1 = \chi_{56+}, \varphi_{56+}$
	45	0	$7796880_1 = \chi_{59+}, \varphi_{59+}$
	46	0	$8663200_1 = \chi_{61+}, \varphi_{61+}$
	47	0	$8771490_1 = \chi_{63+}, \varphi_{63+}$
	48	0	$8771490_2 = \chi_{65+}, \varphi_{65+}$
	49	0	$9052160_1 = \chi_{67+}, \varphi_{67+}$
	50	0	$10024560_1 = \chi_{69+}, \varphi_{69+}$
	51	0	$5870592_1 = \chi_{72,0}, \varphi_{72,0}$
	52	0	$5870592_2 = \chi_{72,1}, \varphi_{72,1}$
	53	0	$12994800_1 = \chi_{73+}, \varphi_{73+}$
	54	0	$14619150_1 = \chi_{75+}, \varphi_{75+}$
	55	0	$7894341_1 = \chi_{77,0}, \varphi_{77,0}$
	56	0	$7894341_2 = \chi_{77,1}, \varphi_{77,1}$
	57	0	$16110900_1 = \chi_{78+}, \varphi_{78+}$
	58	0	$17542980_1 = \chi_{80+}, \varphi_{80+}$
	59	0	$18796050_1 = \chi_{82+}, \varphi_{82+}$
	60	0	$21481200_1 = \chi_{84+}, \varphi_{84+}$
	61	0	$23218650_1 = \chi_{86+}, \varphi_{87+}$
	62	0	$23761920_1 = \chi_{88+}, \varphi_{89+}$
	63	0	$14034384_1 = \chi_{90,0}, \varphi_{91,0}$
	64	0	$14034384_2 = \chi_{90,1}, \varphi_{91,1}$
	65	0	$29238300_1 = \chi_{91+}, \varphi_{92+}$
	66	0	$17326400_1 = \chi_{95,0}, \varphi_{94,0}$
	67	0	$17326400_2 = \chi_{95,1}, \varphi_{94,1}$
$2.G :$	68	0	$52_1 = \chi_{96,0}, \varphi_{95,0}$
	$69 = \overline{68}$	0	$52_2 = \chi_{96,1}, \varphi_{95,1}$
	70	1	8×6
	71	0	$24752_1 = \chi_{99+}, \varphi_{98+}$
	72	0	$22100_1 = \chi_{101,0}, \varphi_{100,0}$
	$73 = \overline{72}$	0	$22100_2 = \chi_{101,1}, \varphi_{100,1}$
	74	0	$43316_1 = \chi_{102,0}, \varphi_{101,0}$
	$75 = \overline{74}$	0	$43316_2 = \chi_{102,1}, \varphi_{101,1}$
	76	0	$46800_1 = \chi_{103,0}, \varphi_{102,0}$
	$77 = \overline{76}$	0	$46800_2 = \chi_{103,1}, \varphi_{102,1}$
	78	0	$848640_1 = \chi_{106+}, \varphi_{105+}$
	79	0	$866320_1 = \chi_{108+}, \varphi_{107+}$
	80	0	$565760_1 = \chi_{110,0}, \varphi_{109,0}$

	blocks	defect	matrix
	81	0	$565760_2 = \chi_{110,1}, \varphi_{109,1}$
	82	0	$1145664_1 = \chi_{111+}, \varphi_{110+}$
	83	0	$1432080_1 = \chi_{113+}, \varphi_{112+}$
	84	0	$1082900_5 = \chi_{115,0}, \varphi_{114,0}$
	$85 = \overline{84}$	0	$1082900_6 = \chi_{115,1}, \varphi_{114,1}$
	86	0	$2165800_1 = \chi_{116+}, \varphi_{115+}$
	87	0	$1146600_1 = \chi_{118,0}, \varphi_{117,0}$
	88	0	$1146600_2 = \chi_{118,1}, \varphi_{117,1}$
	89	0	$2598960_2 = \chi_{121+}, \varphi_{120+}$
	90	0	$3007368_1 = \chi_{123+}, \varphi_{122+}$
	91	0	$3182400_1 = \chi_{125+}, \varphi_{124+}$
	92	0	$3898440_2 = \chi_{127+}, \varphi_{126+}$
	93	0	$2165800_2 = \chi_{129,0}, \varphi_{128,0}$
	94	0	$2165800_3 = \chi_{129,1}, \varphi_{128,1}$
	95	0	$5544448_1 = \chi_{130+}, \varphi_{133+}$
	96	0	$5569200_2 = \chi_{132+}, \varphi_{135+}$
	97	0	$9900800_1 = \chi_{138+}, \varphi_{137+}$
	98	0	$10024560_2 = \chi_{140+}, \varphi_{139+}$
	99	0	$10740600_1 = \chi_{142+}, \varphi_{141+}$
	100	0	$11456640_1 = \chi_{144+}, \varphi_{143+}$
	101	0	$12994800_2 = \chi_{146+}, \varphi_{145+}$
	102	0	$13747968_1 = \chi_{148+}, \varphi_{147+}$
	103	0	$13861120_1 = \chi_{150+}, \varphi_{149+}$
	104	0	$14034384_3 = \chi_{152+}, \varphi_{151+}$
	105	0	$7429968_1 = \chi_{154,0}, \varphi_{153,0}$
	106	0	$7429968_2 = \chi_{154,1}, \varphi_{153,1}$
	107	0	$17326400_3 = \chi_{155+}, \varphi_{156+}$
	108	0	$9052160_2 = \chi_{157,0}, \varphi_{158,0}$
	109	0	$9052160_3 = \chi_{157,1}, \varphi_{158,1}$
	110	0	$9547200_1 = \chi_{158,0}, \varphi_{159,0}$
	111	0	$9547200_2 = \chi_{158,1}, \varphi_{159,1}$
	112	0	$22913280_1 = \chi_{161+}, \varphi_{160+}$
	113	0	$24950016_1 = \chi_{163+}, \varphi_{162+}$
	114	0	$27722240_1 = \chi_{165+}, \varphi_{164+}$
	115	0	$15163200_1 = \chi_{167,0}, \varphi_{166,0}$
	116	0	$15163200_2 = \chi_{167,1}, \varphi_{166,1}$
	117	0	$15163200_3 = \chi_{168,0}, \varphi_{167,0}$
	118	0	$15163200_4 = \chi_{168,1}, \varphi_{167,1}$
	119	0	$16307200_1 = \chi_{169,0}, \varphi_{168,0}$
	120	0	$16307200_2 = \chi_{169,1}, \varphi_{168,1}$

Block 1:	$\varphi_{1,0}$	$\varphi_{2,0}$	$\varphi_{6,1}$	$\varphi_{16,1}$	$\varphi_{17,1}$	$\varphi_{20,0}$	$\varphi_{21,0}$	$\varphi_{24,1}$	$\varphi_{25,1}$	$\varphi_{58,1}$
$1_1 = \chi_{1,0}$	1	.	.	.	.	.	.	.	.	.
$833_1 = \chi_{2,0}$.	1	.	.	.	.	.	.	.	.
$1377_2 = \chi_{6,1}$	1	.	1	.	.	.	.	.	.	.
$142884_2 = \chi_{16,1}$.	.	.	1	.	.	.	.	.	.
$142884_4 = \chi_{17,1}$	1	.	.	.	.	.
$183600_1 = \chi_{20,0}$	1	.	.	.	.
$183600_3 = \chi_{21,0}$	1	.	.	.
$249900_2 = \chi_{24,1}$.	.	1	.	.	.	.	1	.	.
$269892_2 = \chi_{25,1}$.	1	.	.	.	.	.	.	1	.
$3411968_2 = \chi_{58,1}$	1	1
$5640192_1 = \chi_{71,0}$	1	.	.
$15181425_1 = \chi_{93,0}$.	.	.	1	1	1	1	.	.	1
$16777216_1 = \chi_{94,0}$

(Block 1:)	$\varphi_{71,0}$	$\varphi_{86,0}$	
$1_1 = \chi_{1,0}$.	.	$\varphi_{1,0} = 1_1$
$833_1 = \chi_{2,0}$.	.	$\varphi_{2,0} = 833_1$
$1377_2 = \chi_{6,1}$.	.	$\varphi_{6,1} = 1376_2$
$142884_2 = \chi_{16,1}$.	.	$\varphi_{16,1} = 142884_2$
$142884_4 = \chi_{17,1}$.	.	$\varphi_{17,1} = 142884_4$
$183600_1 = \chi_{20,0}$.	.	$\varphi_{20,0} = 183600_1$
$183600_3 = \chi_{21,0}$.	.	$\varphi_{21,0} = 183600_3$
$249900_2 = \chi_{24,1}$.	.	$\varphi_{24,1} = 248524_2$
$269892_2 = \chi_{25,1}$.	.	$\varphi_{25,1} = 269059_2$
$3411968_2 = \chi_{58,1}$.	.	$\varphi_{58,1} = 3142909_2$
$5640192_1 = \chi_{71,0}$	1	.	$\varphi_{71,0} = 5391668_1$
$15181425_1 = \chi_{93,0}$.	1	$\varphi_{86,0} = 11385548_1$
$16777216_1 = \chi_{94,0}$	1	1	

Block 2:	$\varphi_{1,1}$	$\varphi_{2,1}$	$\varphi_{6,0}$	$\varphi_{16,0}$	$\varphi_{17,0}$	$\varphi_{20,1}$	$\varphi_{21,1}$	$\varphi_{24,0}$	$\varphi_{25,0}$	$\varphi_{58,0}$
$1_2 = \chi_{1,1}$	1	.	.	.	.	.	.	.	.	.
$833_2 = \chi_{2,1}$.	1	.	.	.	.	.	.	.	.
$1377_1 = \chi_{6,0}$	1	.	1	.	.	.	.	.	.	.
$142884_1 = \chi_{16,0}$.	.	.	1	.	.	.	.	.	.
$142884_3 = \chi_{17,0}$	1	.	.	.	.	.
$183600_2 = \chi_{20,1}$	1	.	.	.	.
$183600_4 = \chi_{21,1}$	1	.	.	.
$249900_1 = \chi_{24,0}$.	.	1	.	.	.	.	1	.	.
$269892_1 = \chi_{25,0}$.	1	.	.	.	.	.	.	1	.
$3411968_1 = \chi_{58,0}$	1	1
$5640192_2 = \chi_{71,1}$	1	.	.
$15181425_2 = \chi_{93,1}$.	.	.	1	1	1	1	.	.	1
$16777216_2 = \chi_{94,1}$

(Block 2):	$\varphi_{71,1}$	$\varphi_{86,1}$	
$1_2 = \chi_{1,1}$.	.	$\varphi_{1,1} = 1_2$
$833_2 = \chi_{2,1}$.	.	$\varphi_{2,1} = 833_2$
$1377_1 = \chi_{6,0}$.	.	$\varphi_{6,0} = 1376_1$
$142884_1 = \chi_{16,0}$.	.	$\varphi_{16,0} = 142884_1$
$142884_3 = \chi_{17,0}$.	.	$\varphi_{17,0} = 142884_3$
$183600_2 = \chi_{20,1}$.	.	$\varphi_{20,1} = 183600_2$
$183600_4 = \chi_{21,1}$.	.	$\varphi_{21,1} = 183600_4$
$249900_1 = \chi_{24,0}$.	.	$\varphi_{24,0} = 248524_1$
$269892_1 = \chi_{25,0}$.	.	$\varphi_{25,0} = 269059_1$
$3411968_1 = \chi_{58,0}$.	.	$\varphi_{58,0} = 3142909_1$
$5640192_2 = \chi_{71,1}$	1	.	$\varphi_{71,1} = 5391668_2$
$15181425_2 = \chi_{93,1}$.	1	$\varphi_{86,1} = 11385548_2$
$16777216_2 = \chi_{94,1}$	1	1	

Block 70:	φ_{96+}	φ_{103+}	φ_{118+}	φ_{129+}	φ_{131+}	φ_{154+}
$4760_1 = \chi_{97+}$	1	.	.	.	.	.
$110160_1 = \chi_{104+}$	1	1	.	.	.	.
$2467584_1 = \chi_{119+}$	.	1	1	.	.	.
$7144200_1 = \chi_{134+}$	.	.	1	1	.	.
$9596160_1 = \chi_{136+}$	.	.	.	1	1	.
$21591360_1 = \chi_{159+}$	.	.	.	.	1	1
$16777216_3 = \chi_{170,0}$	.	.	.	.	.	1
$16777216_4 = \chi_{170,1}$	.	.	.	.	.	1

$$\begin{aligned}\varphi_{96+} &= 4760_1 \\ \varphi_{103+} &= 105400_1 \\ \varphi_{118+} &= 2362184_1\end{aligned}$$

$$\begin{aligned}\varphi_{129+} &= 4782016_1 \\ \varphi_{131+} &= 4814144_1 \\ \varphi_{154+} &= 16777216_1\end{aligned}$$