

# $A_{16} \pmod{5}$

	blocks	defect	matrix
$G :$	1	3	$37 \times 20$
	2	2	$20 \times 14$
	3	2	$20 \times 14$
	4	2	$20 \times 14$
	5	1	$5 \times 4$
	6	1	$5 \times 4$
	7	1	$5 \times 4$
	8	0	$71500_1 = \chi_{49}, \varphi_{49}$
	9	0	$125125_1 = \chi_{66}, \varphi_{62}$
	$10 = \bar{9}$	0	$125125_2 = \chi_{67}, \varphi_{63}$
	11	0	$173250_1 = \chi_{74}, \varphi_{67}$
	12	0	$202125_1 = \chi_{81}, \varphi_{71}$
	$13 = \bar{12}$	0	$202125_2 = \chi_{82}, \varphi_{72}$
	14	0	$318500_1 = \chi_{95}, \varphi_{78}$
	15	0	$429000_1 = \chi_{103}, \varphi_{81}$
	16	0	$429000_2 = \chi_{104}, \varphi_{82}$
	17	0	$500500_1 = \chi_{109}, \varphi_{84}$
	18	0	$819000_1 = \chi_{122}, \varphi_{85}$

<b>Block 1:</b>	$\varphi_1$	$\varphi_3$	$\varphi_8$	$\varphi_{10}$	$\varphi_{12}$	$\varphi_{14}$	$\varphi_{15}$	$\varphi_{20}$	$\varphi_{22}$	$\varphi_{23}$	$\varphi_{26}$	$\varphi_{28}$	$\varphi_{31}$
$1_1 = \chi_1$	1	.	.	.	.	.	.	.	.	.	.	.	.
$104_1 = \chi_3$	1	1	.	.	.	.	.	.	.	.	.	.	.
$896_1 = \chi_7$	.	1	1	.	.	.	.	.	.	.	.	.	.
$2548_1 = \chi_{11}$	.	1	.	.	1	.	.	.	.	.	.	.	.
$3003_1 = \chi_{13}$	.	.	.	.	.	1	.	.	.	.	.	.	.
$3432_1 = \chi_{14}$	.	.	.	1	1	.	.	.	.	.	.	.	.
$4004_1 = \chi_{17}$	.	.	1	.	.	.	1	.	.	.	.	.	.
$10752_1 = \chi_{20}$	1	1	1	.	1	.	.	.	.	1	.	.	.
$11648_1 = \chi_{21}$	.	.	.	.	.	1	1	1	.	.	.	.	.
$12012_1 = \chi_{22}$	1	.	.	.	.	.	.	.	.	.	1	.	.
$12012_2 = \chi_{23}$	1	.	.	.	.	.	.	.	.	.	1	.	.
$16848_1 = \chi_{26}$	.	.	1	.	.	.	1	1	.	1	.	.	.
$18018_1 = \chi_{27}$	.	.	.	1	1	.	.	.	1	1	.	.	.
$21021_1 = \chi_{29}$	.	.	.	.	.	.	.	.	.	.	.	.	1
$21021_2 = \chi_{30}$	.	.	.	.	.	.	.	.	.	.	.	.	1
$24024_1 = \chi_{33}$	.	.	.	.	.	1	.	1	.	.	.	1	.
$32032_1 = \chi_{36}$	1	.	.	.	.	.	.	1	1	1	1	.	.
$36036_1 = \chi_{37}$	.	.	1	1	.	.	.	.	.	.	.	.	.
$36608_1 = \chi_{38}$	.	.	.	.	.	.	.	.	.	.	.	1	1
$69888_1 = \chi_{48}$	1	1	.	1	1	.	.	.	.	1	.	.	.
$82368_1 = \chi_{54}$	.	.	.	.	.	.	.	1	.	.	.	1	1
$91728_1 = \chi_{57}$	.	.	.	.	.	.	.	1	.	.	1	1	.
$112112_1 = \chi_{60}$	.	1	1	1	1	.	.	.	1	1	.	.	.
$112112_2 = \chi_{61}$	.	.	.	.	.	.	.	1	.	1	.	.	.
$155232_1 = \chi_{71}$	.	.	.	.	.	.	.	.	.	.	.	.	2
$168168_1 = \chi_{72}$	.	.	.	.	.	.	.	.	.	.	.	1	1
$206388_1 = \chi_{83}$	.	.	.	.	.	.	.	.	.	.	.	.	.
$292864_1 = \chi_{92}$	.	1	1	1	.	.	1	.	1	.	.	.	.
$336336_1 = \chi_{97}$	1	1	.	.	.	.	.	.	1	.	2	.	.
$416988_1 = \chi_{102}$	1	1	1	1	.	.	1	1	1	1	1	.	.
$448448_1 = \chi_{105}$	.	.	.	1	.	1	.	.	1	.	.	.	.
$464373_1 = \chi_{106}$	.	.	.	.	.	.	.	.	.	.	.	.	1
$464373_2 = \chi_{107}$	.	.	.	.	.	.	.	.	.	.	.	.	1
$512512_1 = \chi_{110}$	.	1	.	1	.	.	.	.	.	.	.	.	.
$559104_1 = \chi_{113}$	.	.	.	.	.	1	.	1	.	.	1	1	1
$648648_1 = \chi_{119}$	.	.	.	1	.	1	1	1	1	.	1	.	.
$1153152_1 = \chi_{123}$	.	.	.	2	.	.	.	.	2	.	2	.	.

<b>(Block 1:)</b>	$\varphi_{35}$	$\varphi_{38}$	$\varphi_{46}$	$\varphi_{47}$	$\varphi_{51}$	$\varphi_{76}$	$\varphi_{79}$	
$1_1 = \chi_1$	.	.	.	.	.	.	.	
$104_1 = \chi_3$	.	.	.	.	.	.	.	
$896_1 = \chi_7$	.	.	.	.	.	.	.	
$2548_1 = \chi_{11}$	.	.	.	.	.	.	.	
$3003_1 = \chi_{13}$	.	.	.	.	.	.	.	
$3432_1 = \chi_{14}$	.	.	.	.	.	.	.	
$4004_1 = \chi_{17}$	.	.	.	.	.	.	.	
$10752_1 = \chi_{20}$	.	.	.	.	.	.	.	
$11648_1 = \chi_{21}$	.	.	.	.	.	.	.	$\varphi_1 = 1_1$
$12012_1 = \chi_{22}$	.	.	.	.	.	.	.	$\varphi_3 = 103_1$
$12012_2 = \chi_{23}$	.	.	.	.	.	.	.	$\varphi_8 = 793_1$
$16848_1 = \chi_{26}$	.	.	.	.	.	.	.	$\varphi_{10} = 987_1$
$18018_1 = \chi_{27}$	.	.	.	.	.	.	.	$\varphi_{12} = 2445_1$
$21021_1 = \chi_{29}$	.	.	.	.	.	.	.	$\varphi_{14} = 3003_1$
$21021_2 = \chi_{30}$	.	.	.	.	.	.	.	$\varphi_{15} = 3211_1$
$24024_1 = \chi_{33}$	.	.	.	.	.	.	.	$\varphi_{20} = 5434_1$
$32032_1 = \chi_{36}$	.	.	.	.	.	.	.	$\varphi_{22} = 7176_1$
$36036_1 = \chi_{37}$	1	.	.	.	.	.	.	$\varphi_{23} = 7410_1$
$36608_1 = \chi_{38}$	.	.	.	.	.	.	.	$\varphi_{26} = 12011_1$
$69888_1 = \chi_{48}$	.	.	.	1	.	.	.	$\varphi_{28} = 15587_1$
$82368_1 = \chi_{54}$	.	1	.	.	.	.	.	$\varphi_{31} = 21021_1$
$91728_1 = \chi_{57}$	.	.	1	.	.	.	.	$\varphi_{35} = 34256_1$
$112112_1 = \chi_{60}$	1	.	.	1	.	.	.	$\varphi_{38} = 40326_1$
$112112_2 = \chi_{61}$	.	1	.	1	.	.	.	$\varphi_{46} = 58696_1$
$155232_1 = \chi_{71}$	.	1	.	.	1	.	.	$\varphi_{47} = 58942_1$
$168168_1 = \chi_{72}$	.	.	1	.	1	.	.	$\varphi_{51} = 72864_1$
$206388_1 = \chi_{83}$	1	1	.	1	1	.	.	$\varphi_{76} = 246338_1$
$292864_1 = \chi_{92}$	1	.	.	.	.	1	.	$\varphi_{79} = 330162_1$
$336336_1 = \chi_{97}$	.	.	1	.	.	1	.	
$416988_1 = \chi_{102}$	1	1	.	1	.	1	.	
$448448_1 = \chi_{105}$	1	.	.	.	1	.	1	
$464373_1 = \chi_{106}$	.	1	.	.	1	.	1	
$464373_2 = \chi_{107}$	.	1	.	.	1	.	1	
$512512_1 = \chi_{110}$	1	1	1	1	1	1	.	
$559104_1 = \chi_{113}$	.	1	1	.	1	.	1	
$648648_1 = \chi_{119}$	.	1	.	.	.	1	1	
$1153152_1 = \chi_{123}$	1	1	1	.	1	1	2	

<b>Block 2:</b>	$\varphi_2$	$\varphi_{11}$	$\varphi_{16}$	$\varphi_{18}$	$\varphi_{33}$	$\varphi_{36}$	$\varphi_{37}$	$\varphi_{41}$	$\varphi_{50}$	$\varphi_{55}$	$\varphi_{58}$	$\varphi_{66}$	$\varphi_{73}$
$15_1 = \chi_2$	1	.	.	.	.	.	.	.	.	.	.	.	.
$1365_1 = \chi_9$	.	1	.	.	.	.	.	.	.	.	.	.	.
$3640_1 = \chi_{15}$	.	.	1	.	.	.	.	.	.	.	.	.	.
$5005_1 = \chi_{18}$	.	.	.	1	.	.	.	.	.	.	.	.	.
$38220_1 = \chi_{39}$	1	.	1	.	.	1	.	.	.	.	.	.	.
$42120_1 = \chi_{40}$	.	.	.	1	.	.	1	.	.	.	.	.	.
$45760_1 = \chi_{42}$	.	1	.	.	.	.	.	1	.	.	.	.	.
$68640_1 = \chi_{47}$	.	.	1	.	1	1	.	.	.	.	.	.	.
$71680_1 = \chi_{50}$	.	.	.	.	.	1	1	.	.	.	.	.	.
$116480_1 = \chi_{65}$	.	.	.	.	.	.	.	1	1	.	.	.	.
$180180_2 = \chi_{76}$	1	.	.	.	.	.	.	.	1	.	1	.	.
$194040_1 = \chi_{77}$	.	.	.	.	.	.	.	1	.	.	.	1	.
$210210_1 = \chi_{84}$	1	.	.	.	1	1	1	.	.	.	1	.	.
$240240_2 = \chi_{87}$	.	.	.	1	.	.	1	.	.	1	1	.	.
$280280_2 = \chi_{91}$	.	1	.	.	1	.	.	.	.	.	.	.	.
$305760_1 = \chi_{94}$	.	.	.	1	.	.	.	.	.	1	.	.	1
$360360_1 = \chi_{99}$	.	.	.	.	.	.	.	.	.	.	.	1	1
$515970_1 = \chi_{111}$	.	1	.	.	.	.	.	1	1	.	.	1	.
$549120_1 = \chi_{112}$	.	.	.	.	1	.	.	.	1	1	1	.	.
$698880_1 = \chi_{121}$	.	.	.	.	.	.	.	.	.	1	.	1	1

(Block 2:)	$\varphi_{77}$		
$15_1 = \chi_2$	.		
$1365_1 = \chi_9$	.		
$3640_1 = \chi_{15}$	.	$\varphi_2 =$	$15_1$
$5005_1 = \chi_{18}$	.	$\varphi_{11} =$	$1365_1$
$38220_1 = \chi_{39}$	.	$\varphi_{16} =$	$3640_1$
$42120_1 = \chi_{40}$	.	$\varphi_{18} =$	$5005_1$
$45760_1 = \chi_{42}$	.	$\varphi_{33} =$	$30435_1$
$68640_1 = \chi_{47}$	.	$\varphi_{36} =$	$34565_1$
$71680_1 = \chi_{50}$	.	$\varphi_{37} =$	$37115_1$
$116480_1 = \chi_{65}$	.	$\varphi_{41} =$	$44395_1$
$180180_2 = \chi_{76}$	.	$\varphi_{50} =$	$72085_1$
$194040_1 = \chi_{77}$	.	$\varphi_{55} =$	$90040_1$
$210210_1 = \chi_{84}$	.	$\varphi_{58} =$	$108080_1$
$240240_2 = \chi_{87}$	.	$\varphi_{66} =$	$149645_1$
$280280_2 = \chi_{91}$	1	$\varphi_{73} =$	$210715_1$
$305760_1 = \chi_{94}$	.	$\varphi_{77} =$	$248480_1$
$360360_1 = \chi_{99}$	.		
$515970_1 = \chi_{111}$	1		
$549120_1 = \chi_{112}$	1		
$698880_1 = \chi_{121}$	1		

<b>Block 3:</b>	$\varphi_4$	$\varphi_6$	$\varphi_{19}$	$\varphi_{21}$	$\varphi_{30}$	$\varphi_{34}$	$\varphi_{39}$	$\varphi_{40}$	$\varphi_{44}$	$\varphi_{48}$	$\varphi_{52}$	$\varphi_{65}$	$\varphi_{70}$
$105_1 = \chi_4$	1	.	.	.	.	.	.	.	.	.	.	.	.
$455_1 = \chi_6$	.	1	.	.	.	.	.	.	.	.	.	.	.
$6435_1 = \chi_{19}$	.	.	.	1	.	.	.	.	.	.	.	.	.
$20020_1 = \chi_{28}$	1	.	.	.	1	.	.	.	.	.	.	.	.
$24960_1 = \chi_{34}$	.	.	1	.	1	.	.	.	.	.	.	.	.
$43120_1 = \chi_{41}$	.	1	.	.	.	.	.	1	.	.	.	.	.
$60060_2 = \chi_{45}$	.	1	1	.	.	.	.	.	1	.	.	.	.
$65520_1 = \chi_{46}$	1	.	1	.	1	.	1	.	.	.	.	.	.
$73710_1 = \chi_{51}$	.	.	.	.	.	1	.	1	.	.	.	.	.
$76440_1 = \chi_{52}$	.	.	.	1	.	.	.	.	.	1	.	.	.
$80640_1 = \chi_{53}$	.	.	.	1	.	.	.	.	.	.	1	.	.
$114660_1 = \chi_{63}$	.	.	.	.	.	.	1	.	.	.	1	.	.
$180180_1 = \chi_{75}$	.	.	.	.	.	.	.	1	.	.	.	1	.
$231660_1 = \chi_{85}$	1	.	.	.	.	1	.	.	.	.	.	.	1
$262080_1 = \chi_{88}$	.	.	.	.	.	.	.	.	1	1	.	1	.
$266240_1 = \chi_{89}$	.	1	.	.	.	1	.	1	1	.	.	1	.
$320320_1 = \chi_{96}$	1	.	1	.	.	.	1	.	.	.	1	.	1
$480480_1 = \chi_{108}$	.	.	.	1	.	.	.	.	1	1	.	.	.
$630630_1 = \chi_{116}$	.	.	.	1	.	.	.	.	.	.	1	.	1
$640640_1 = \chi_{118}$	.	.	1	.	.	1	.	.	1	.	.	.	1

(Block 3:)	$\varphi_{80}$		
$105_1 = \chi_4$	.		
$455_1 = \chi_6$	.		
$6435_1 = \chi_{19}$	.	$\varphi_4 =$	$105_1$
$20020_1 = \chi_{28}$	.	$\varphi_6 =$	$455_1$
$24960_1 = \chi_{34}$	.	$\varphi_{19} =$	$5045_1$
$43120_1 = \chi_{41}$	.	$\varphi_{21} =$	$6435_1$
$60060_2 = \chi_{45}$	.	$\varphi_{30} =$	$19915_1$
$65520_1 = \chi_{46}$	.	$\varphi_{34} =$	$31045_1$
$73710_1 = \chi_{51}$	.	$\varphi_{39} =$	$40455_1$
$76440_1 = \chi_{52}$	.	$\varphi_{40} =$	$42665_1$
$80640_1 = \chi_{53}$	.	$\varphi_{44} =$	$54560_1$
$114660_1 = \chi_{63}$	.	$\varphi_{48} =$	$70005_1$
$180180_1 = \chi_{75}$	.	$\varphi_{52} =$	$74205_1$
$231660_1 = \chi_{85}$	.	$\varphi_{65} =$	$137515_1$
$262080_1 = \chi_{88}$	.	$\varphi_{70} =$	$200510_1$
$266240_1 = \chi_{89}$	.	$\varphi_{80} =$	$349480_1$
$320320_1 = \chi_{96}$	.		
$480480_1 = \chi_{108}$	1		
$630630_1 = \chi_{116}$	1		
$640640_1 = \chi_{118}$	1		

<b>Block 4:</b>	$\varphi_5$	$\varphi_7$	$\varphi_9$	$\varphi_{13}$	$\varphi_{24}$	$\varphi_{25}$	$\varphi_{29}$	$\varphi_{43}$	$\varphi_{45}$	$\varphi_{53}$	$\varphi_{61}$	$\varphi_{68}$	$\varphi_{74}$
$440_1 = \chi_5$	1	.	.	.	.	.	.	.	.	.	.	.	.
$1260_1 = \chi_8$	1	.	1	.	.	.	.	.	.	.	.	.	.
$1430_1 = \chi_{10}$	.	1	1	.	.	.	.	.	.	.	.	.	.
$2640_1 = \chi_{12}$	.	.	.	1	.	.	.	.	.	.	.	.	.
$13860_1 = \chi_{24}$	.	.	.	1	.	1	.	.	.	.	.	.	.
$21840_1 = \chi_{31}$	.	.	.	.	1	1	.	.	.	.	.	.	.
$30030_1 = \chi_{35}$	.	.	.	.	.	1	1	.	.	.	.	.	.
$51480_1 = \chi_{43}$	.	1	.	1	.	.	.	1	.	.	.	.	.
$60060_1 = \chi_{44}$	1	1	1	.	.	.	.	.	1	.	.	.	.
$91520_1 = \chi_{56}$	.	.	.	1	1	1	1	1	.	.	.	.	.
$115830_1 = \chi_{64}$	.	.	.	.	.	.	.	.	.	.	1	.	.
$140140_1 = \chi_{68}$	.	.	.	.	1	.	.	1	.	1	.	.	.
$197120_1 = \chi_{78}$	.	.	.	.	.	.	.	.	.	1	1	.	.
$240240_1 = \chi_{86}$	1	.	.	.	.	.	.	.	1	.	.	1	.
$280280_1 = \chi_{90}$	.	.	.	.	.	.	.	.	1	.	.	.	.
$337920_1 = \chi_{98}$	.	.	.	.	.	.	.	.	.	.	1	.	.
$360360_2 = \chi_{100}$	.	1	.	.	.	.	1	1	.	1	.	.	1
$411840_1 = \chi_{101}$	.	.	.	.	.	.	1	.	.	.	.	1	1
$630630_2 = \chi_{117}$	.	.	.	.	.	.	.	.	.	1	1	.	1
$673920_1 = \chi_{120}$	.	1	.	.	.	.	.	.	1	.	.	1	1



(Block 4:)	$\varphi_{75}$		
$440_1 = \chi_5$	.		
$1260_1 = \chi_8$	.		
$1430_1 = \chi_{10}$	.	$\varphi_5 =$	$440_1$
$2640_1 = \chi_{12}$	.	$\varphi_7 =$	$610_1$
$13860_1 = \chi_{24}$	.	$\varphi_9 =$	$820_1$
$21840_1 = \chi_{31}$	.	$\varphi_{13} =$	$2640_1$
$30030_1 = \chi_{35}$	.	$\varphi_{24} =$	$10620_1$
$51480_1 = \chi_{43}$	.	$\varphi_{25} =$	$11220_1$
$60060_1 = \chi_{44}$	.	$\varphi_{29} =$	$18810_1$
$91520_1 = \chi_{56}$	.	$\varphi_{43} =$	$48230_1$
$115830_1 = \chi_{64}$	.	$\varphi_{45} =$	$58190_1$
$140140_1 = \chi_{68}$	.	$\varphi_{53} =$	$81290_1$
$197120_1 = \chi_{78}$	.	$\varphi_{61} =$	$115830_1$
$240240_1 = \chi_{86}$	.	$\varphi_{68} =$	$181610_1$
$280280_1 = \chi_{90}$	1	$\varphi_{74} =$	$211420_1$
$337920_1 = \chi_{98}$	1	$\varphi_{75} =$	$222090_1$
$360360_2 = \chi_{100}$	.		
$411840_1 = \chi_{101}$	.		
$630630_2 = \chi_{117}$	1		
$673920_1 = \chi_{120}$	1		

Block 5:	$\varphi_{17}$	$\varphi_{56}$	$\varphi_{59}$	$\varphi_{83}$		
$3900_1 = \chi_{16}$	1	.	.	.	$\varphi_{17} =$	$3900_1$
$100100_1 = \chi_{58}$	1	1	.	.	$\varphi_{56} =$	$96200_1$
$114400_1 = \chi_{62}$	.	.	1	.	$\varphi_{59} =$	$114400_1$
$582400_1 = \chi_{114}$	.	1	.	1	$\varphi_{83} =$	$486200_1$
$600600_1 = \chi_{115}$	.	.	1	1		

Block 6:	$\varphi_{27}$	$\varphi_{54}$	$\varphi_{60}$	$\varphi_{69}$		
$14300_1 = \chi_{25}$	1	.	.	.	$\varphi_{27} =$	$14300_1$
$85800_1 = \chi_{55}$	.	1	.	.	$\varphi_{54} =$	$85800_1$
$200200_1 = \chi_{79}$	1	.	.	1	$\varphi_{60} =$	$114400_2$
$200200_2 = \chi_{80}$	.	1	1	.	$\varphi_{69} =$	$185900_1$
$300300_1 = \chi_{93}$	.	.	1	1		

<b>Block 7:</b>	$\varphi_{32}$	$\varphi_{42}$	$\varphi_{57}$	$\varphi_{64}$
$23100_1 = \chi_{32}$	1	.	.	.
$105600_1 = \chi_{59}$	.	.	1	.
$150150_1 = \chi_{69}$	.	1	1	.
$150150_2 = \chi_{70}$	1	.	.	1
$171600_1 = \chi_{73}$	.	1	.	1

$$\begin{aligned} \varphi_{32} &= 23100_1 \\ \varphi_{42} &= 44550_1 \\ \varphi_{57} &= 105600_1 \\ \varphi_{64} &= 127050_1 \end{aligned}$$