

Character Tables of Multiplicity-Free Endomorphism Rings

$G = 3.M_{22}$ (no. 4)

$H = L_2(11) \rightarrow (M_{22}, 9)$

rank: 16

degree: 2016

	O_1	O_2	O_3	O_4	O_5
$1a$	1	1	1	55	55
$21a$	1	1	1	-25	-25
$55a$	1	1	1	13	13
$154a$	1	1	1	7	7
$210a$	1	1	1	-3	-3
$231a$	1	1	1	-3	-3
$21b$	1	$z3$	$z3^{**}$	20	$20z3^{**}$
$21c$	1	$z3^{**}$	$z3$	20	$20z3$
$105a$	1	$z3$	$z3^{**}$	$-2+2r33$	$-4+8v33+8v33^*5+4v33^*7$
$105b$	1	$z3^{**}$	$z3$	$-2-2r33$	$4v33+4v33^*5-4v33^*7$
$105c$	1	$z3$	$z3^{**}$	$-2-2r33$	$4-4v33-8v33^*5$
$105d$	1	$z3^{**}$	$z3$	$-2+2r33$	$4-8v33-4v33^*5$
$210b$	1	$z3$	$z3^{**}$	0	0
$210c$	1	$z3^{**}$	$z3$	0	0
$231b$	1	$z3$	$z3^{**}$	0	0
$231c$	1	$z3^{**}$	$z3$	0	0

	O_6	O_7	O_8
$1a$	55	66	66
$21a$	-25	-6	-6
$55a$	13	-18	-18
$154a$	7	6	6
$210a$	-3	-6	-6
$231a$	-3	6	6
$21b$	$20z3$	-24	$-24z3$
$21c$	$20z3^{**}$	-24	$-24z3^{**}$
$105a$	$4-8v33-4v33^*5$	$9+r33$	$-8+6v33-2v33^*5+10v33^*7$
$105b$	$4-4v33-8v33^*5$	$9-r33$	$2-12v33-4v33^*5-10v33^*7$
$105c$	$4v33+4v33^*5-4v33^*7$	$9-r33$	$-10+12v33+2v33^*5+8v33^*7$
$105d$	$-4+8v33+8v33^*5+4v33^*7$	$9+r33$	$-2-6v33+4v33^*5-8v33^*7$
$210b$	0	0	0
$210c$	0	0	0
$231b$	0	-6	$-6z3$
$231c$	0	-6	$-6z3^{**}$

	O_9	O_{10}	O_{11}
$1a$	66	165	165
$21a$	-6	45	45
$55a$	-18	-3	-3
$154a$	6	9	9
$210a$	-6	1	1
$231a$	6	-11	-11
$21b$	-24z3**	45	45z3
$21c$	-24z3	45	45z3**
$105a$	-2-6v33+4v33*5-8v33*7	12-r33	-13+15v33+2v33*5+11v33*7
$105b$	-10+12v33+2v33*5+8v33*7	12+r33	-2-9v33+4v33*5-11v33*7
$105c$	2-12v33-4v33*5-10v33*7	12+r33	-11+9v33-2v33*5+13v33*7
$105d$	-8+6v33-2v33*5+10v33*7	12-r33	2-15v33-4v33*5-13v33*7
$210b$	0	-11	-11z3
$210c$	0	-11	-11z3**
$231b$	-6z3**	-5	-5z3
$231c$	-6z3	-5	-5z3**

	O_{12}	O_{13}	O_{14}	O_{15}
$1a$	165	165	330	330
$21a$	45	45	-30	-30
$55a$	-3	39	-6	-6
$154a$	9	-15	-18	-18
$210a$	1	-21	14	14
$231a$	-11	15	2	2
$21b$	45z3**	0	-30	-30z3
$21c$	45z3	0	-30	-30z3**
$105a$	2-15v33-4v33*5-13v33*7	0	3+r33	-2-2v33*5+4v33*7
$105b$	-11+9v33-2v33*5+13v33*7	0	3-r33	2-6v33-4v33*5-4v33*7
$105c$	-2-9v33+4v33*5-11v33*7	0	3-r33	-4+6v33+2v33*5+2v33*7
$105d$	-13+15v33+2v33*5+11v33*7	0	3+r33	-2+4v33*5-2v33*7
$210b$	-11z3**	0	-22	-22z3
$210c$	-11z3	0	-22	-22z3**
$231b$	-5z3**	0	20	20z3
$231c$	-5z3	0	20	20z3**

	O_{16}
$1a$	330
$21a$	-30
$55a$	-6
$154a$	-18
$210a$	14
$231a$	2
$21b$	-30z3**
$21c$	-30z3
$105a$	-2+4v33*5-2v33*7
$105b$	-4+6v33+2v33*5+2v33*7
$105c$	2-6v33-4v33*5-4v33*7
$105d$	-2-2v33*5+4v33*7
$210b$	-22z3**
$210c$	-22z3
$231b$	20z3**
$231c$	20z3

$$r33 = Sqrt(33)$$

$$v33 = z33 + z33^4 + z33^{16} + z33^{25} + z33^{31}$$

$$z3 = (-1 + \sqrt{-3})/2$$

$$z3^{**} = (-1 - \sqrt{-3})/2$$

References

[Lin] S. A. Linton. private communication.