Character Tables of Multiplicity-Free Endomorphism Rings

$G = 6.M_{22}.2$ (no. 5)

$H = L_2(11).2 \to (M_{22}.2, 16)$

rank: 20

degree: 4032

	O_1	O_2	O_3	O_4	O_5	O_6	O_7	O_8	O_9
$1a^+$	1	1	2	2	55	55	110	110	132
$21a^-$	1	1	2	2	-25	-25	-50	-50	-12
$55a^+$	1	1	2	2	13	13	26	26	-36
$154a^+$	1	1	2	2	7	7	14	14	12
$210a^-$	1	1	2	2	-3	-3	-6	-6	-12
$231a^-$	1	1	2	2	-3	-3	-6	-6	12
$56a^+$	1	-1	2	-2	10+3r5	-10-3r5	-20-6r5	20+6r5	0
$56a^-$	1	-1	2	-2	10-3r5	-10+3r5	-20+6r5	20-6r5	0
$120a^-$	1	-1	2	-2	-13	13	26	-26	0
$440a^+$	1	-1	2	-2	1	-1	-2	2	0
$21bc$	1	1	-1	-1	20	20	-20	-20	24
$105ad$	1	1	-1	-1	-2+2r33	-2+2r33	2-2r33	2-2r33	-9-r33
$105bc$	1	1	-1	-1	-2-2r33	-2-2r33	2+2r33	2+2r33	-9+r33
$210cd$	1	1	-1	-1	0	0	0	0	0
$231bc$	1	1	-1	-1	0	0	0	0	6
$66ab$	1	-1	-1	1	10	-10	10	-10	-12i7
$66cd$	1	-1	-1	1	10	-10	10	-10	12i7
$120bc$	1	-1	-1	1	-4	4	-4	4	0
$210gj$	1	-1	-1	1	-2+4r3	2-4r3	-2+4r3	2-4r3	0
$210hi$	1	-1	-1	1	-2-4r3	2+4r3	-2-4r3	2+4r3	0

	O_{10}	O_{11}	O_{12}	O_{13}	O_{14}	O_{15}	O_{16}
$1a^+$	132	132	165	165	165	165	330
$21a^-$	-12	-12	45	45	45	45	90
$55a^+$	-36	-36	39	39	-3	-3	-6
$154a^+$	12	12	-15	-15	9	9	18
$210a^-$	-12	-12	-21	-21	1	1	2
$231a^-$	12	12	15	15	-11	-11	-22
$56a^+$	0	0	-30-9r5	30+9r5	15-12r5	-15+12r5	-30+24r5
$56a^-$	0	0	-30+9r5	30-9r5	15+12r5	-15-12r5	-30-24r5
$120a^-$	0	0	-27	27	-3	3	6
$440a^+$	0	0	15	-15	-3	3	6
$21bc$	-48	24	0	0	45	45	-45
$105ad$	18+2r33	-9-r33	0	0	12-r33	12-r33	-12+r33
$105bc$	18-2r33	-9+r33	0	0	12+r33	12+r33	-12-r33
$210cd$	0	0	0	0	-11	-11	11
$231bc$	-12	6	0	0	-5	-5	5
$66ab$	0	12i7	0	0	15	-15	15
$66cd$	0	-12i7	0	0	15	-15	15
$120bc$	0	0	0	0	15	-15	15
$210gj$	0	0	0	0	-9-4r3	9+4r3	-9-4r3
$210hi$	0	0	0	0	-9+4r3	9-4r3	-9+4r3

	O_{17}	O_{18}	O_{19}	O_{20}
$1a^+$	330	660	660	660
$21a^-$	90	-60	-60	-60
$55a^+$	-6	-12	-12	-12
$154a^+$	18	-36	-36	-36
$210a^-$	2	28	28	28
$231a^-$	-22	4	4	4
$56a^+$	30-24r5	0	0	0
$56a^-$	30+24r5	0	0	0
$120a^-$	-6	0	0	0
$440a^+$	-6	0	0	0
$21bc$	-45	-60	30	30
$105ad$	-12+r33	6+2r33	-3-r33	-3-r33
$105bc$	-12-r33	6-2r33	-3+r33	-3+r33
$210cd$	11	-44	22	22
$231bc$	5	40	-20	-20
$66ab$	-15	0	-30	30
$66cd$	-15	0	-30	30
$120bc$	-15	0	54	-54
$210gj$	9+4r3	0	-6+12r3	6-12r3
$210hi$	9-4r3	0	-6-12r3	6+12r3

i7 = $Sqrt(-7)$
r3 = $Sqrt(3)$
r33 = $Sqrt(33)$
r5 = $Sqrt(5)$

References

[Mül08] J. Müller. On the multiplicity-free actions of the sporadic simple groups. *J. Algebra*, 320:910–926, 2008.