

# Character Tables of Multiplicity-Free Endomorphism Rings

$G = J_2.2$  (no. 7)

$H = 2_-^{1+4} : 5 : 4 < 2_-^{1+4} : S_5$

rank: 12

degree: 1890

|          | $O_1$ | $O_2$ | $O_3$ | $O_4$ | $O_5$  | $O_6$ | $O_7$ | $O_8$ | $O_9$  | $O_{10}$ |
|----------|-------|-------|-------|-------|--------|-------|-------|-------|--------|----------|
| $1a^+$   | 1     | 5     | 20    | 40    | 64     | 80    | 80    | 160   | 160    | 320      |
| $14ab$   | 1     | 5     | -10   | -20   | 4      | 20    | 20    | -20   | -20    | 20       |
| $36a^+$  | 1     | 5     | 10    | 20    | -16    | 10    | 10    | 0     | 0      | -80      |
| $63a^-$  | 1     | -1    | 8     | -8    | 0      | -24   | -8    | -32   | 32     | 0        |
| $90a^+$  | 1     | 5     | 6     | 12    | 8      | -4    | -4    | -8    | -8     | 40       |
| $126a^+$ | 1     | -1    | 6     | -6    | -4     | 8     | -16   | 28    | 4      | 4        |
| $126a^-$ | 1     | -1    | -2    | 2     | 20     | 16    | -8    | -12   | 12     | -20      |
| $160a^+$ | 1     | 5     | -4    | -8    | -2     | -4    | -4    | 7     | 7      | -10      |
| $288a^-$ | 1     | -1    | -4    | 4     | 6      | -12   | 4     | 13    | -1     | -6       |
| $300a^-$ | 1     | -1    | -4    | 4     | -8     | 2     | -10   | -8    | -8     | 8        |
| $336a^+$ | 1     | -1    | 2+r6  | -2-r6 | -2+2r6 | 2-r6  | 8-r6  | -2    | -2-6r6 | 2-2r6    |
| $336a^-$ | 1     | -1    | 2-r6  | -2+r6 | -2-2r6 | 2+r6  | 8+r6  | -2    | -2+6r6 | 2+2r6    |

|          | $O_{11}$ | $O_{12}$ |
|----------|----------|----------|
| $1a^+$   | 320      | 640      |
| $14ab$   | 80       | -80      |
| $36a^+$  | 40       | 0        |
| $63a^-$  | 32       | 0        |
| $90a^+$  | -16      | -32      |
| $126a^+$ | 8        | -32      |
| $126a^-$ | -8       | 0        |
| $160a^+$ | -16      | 28       |
| $288a^-$ | 8        | -12      |
| $300a^-$ | 8        | 16       |
| $336a^+$ | -10+2r6  | 4+6r6    |
| $336a^-$ | -10-2r6  | 4-6r6    |

r6 =  $\text{Sqrt}(6)$

## References

- [Höh01] I. Höhler. Vielfachheitsfreie Permutationsdarstellungen und die Invarianten zugehöriger Graphen. Examensarbeit, RWTH Aachen, 2001.