

$J_4 \pmod{37}$

| | blocks | defect | matrix |
|-------|-----------------|--------|--|
| $G :$ | 1 | 1 | 15×12 |
| | 2 | 0 | $299367_1 = \chi_4, \varphi_4$ |
| | $3 = \bar{2}$ | 0 | $299367_2 = \chi_5, \varphi_5$ |
| | 4 | 0 | $887778_1 = \chi_6, \varphi_6$ |
| | $5 = \bar{4}$ | 0 | $887778_2 = \chi_7, \varphi_7$ |
| | 6 | 0 | $1187145_1 = \chi_9, \varphi_9$ |
| | $7 = \bar{6}$ | 0 | $1187145_2 = \chi_{10}, \varphi_{10}$ |
| | 8 | 0 | $1776888_1 = \chi_{11}, \varphi_{11}$ |
| | 9 | 0 | $3403149_1 = \chi_{12}, \varphi_{12}$ |
| | $10 = \bar{9}$ | 0 | $3403149_2 = \chi_{13}, \varphi_{13}$ |
| | 11 | 0 | $4290927_1 = \chi_{14}, \varphi_{14}$ |
| | 12 | 0 | $32897107_1 = \chi_{17}, \varphi_{17}$ |
| | $13 = \bar{12}$ | 0 | $32897107_2 = \chi_{18}, \varphi_{18}$ |
| | 14 | 0 | $95288172_1 = \chi_{21}, \varphi_{21}$ |
| | 15 | 0 | $230279749_1 = \chi_{22}, \varphi_{24}$ |
| | 16 | 0 | $300364890_1 = \chi_{25}, \varphi_{25}$ |
| | 17 | 0 | $366159104_1 = \chi_{26}, \varphi_{26}$ |
| | 18 | 0 | $393877506_1 = \chi_{27}, \varphi_{27}$ |
| | 19 | 0 | $394765284_1 = \chi_{28}, \varphi_{28}$ |
| | 20 | 0 | $460559498_1 = \chi_{29}, \varphi_{29}$ |
| | 21 | 0 | $493456605_1 = \chi_{30}, \varphi_{30}$ |
| | 22 | 0 | $690839247_1 = \chi_{31}, \varphi_{31}$ |
| | 23 | 0 | $786127419_1 = \chi_{32}, \varphi_{32}$ |
| | 24 | 0 | $786127419_2 = \chi_{33}, \varphi_{33}$ |
| | 25 | 0 | $786127419_3 = \chi_{34}, \varphi_{34}$ |
| | 26 | 0 | $789530568_1 = \chi_{35}, \varphi_{35}$ |
| | 27 | 0 | $885257856_1 = \chi_{36}, \varphi_{36}$ |
| | 28 | 0 | $885257856_2 = \chi_{37}, \varphi_{37}$ |
| | 29 | 0 | $1016407168_1 = \chi_{38}, \varphi_{39}$ |
| | 30 | 0 | $1016407168_2 = \chi_{39}, \varphi_{40}$ |
| | 31 | 0 | $1085604531_1 = \chi_{40}, \varphi_{42}$ |
| | 32 | 0 | $1089007680_1 = \chi_{41}, \varphi_{43}$ |
| | 33 | 0 | $1182518964_1 = \chi_{42}, \varphi_{44}$ |
| | 34 | 0 | $1184295852_1 = \chi_{45}, \varphi_{45}$ |
| | 35 | 0 | $1445942610_1 = \chi_{46}, \varphi_{46}$ |
| | 36 | 0 | $1445942610_2 = \chi_{47}, \varphi_{47}$ |
| | 37 | 0 | $1445942610_3 = \chi_{48}, \varphi_{48}$ |
| | 38 | 0 | $1509863773_1 = \chi_{49}, \varphi_{49}$ |
| | 39 | 0 | $1579061136_1 = \chi_{50}, \varphi_{50}$ |
| | 40 | 0 | $1842237992_1 = \chi_{51}, \varphi_{51}$ |

| | blocks | defect | matrix |
|--|--------|--------|--|
| | 41 | 0 | $1903741279_1 = \chi_{52}, \varphi_{52}$ |
| | 42 | 0 | $2001151845_1 = \chi_{56}, \varphi_{53}$ |
| | 43 | 0 | $2001151845_2 = \chi_{57}, \varphi_{54}$ |
| | 44 | 0 | $2001151845_3 = \chi_{58}, \varphi_{55}$ |
| | 45 | 0 | $2267824128_1 = \chi_{59}, \varphi_{56}$ |
| | 46 | 0 | $2692972480_1 = \chi_{60}, \varphi_{57}$ |
| | 47 | 0 | $2727495848_1 = \chi_{61}, \varphi_{58}$ |
| | 48 | 0 | $3054840657_1 = \chi_{62}, \varphi_{59}$ |

| Block 1: | φ_1 | φ_2 | φ_3 | φ_8 | φ_{15} | φ_{16} | φ_{19} | φ_{20} | φ_{22} | φ_{23} | φ_{38} | φ_{41} |
|----------------------------|-------------|-------------|-------------|-------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| $1_1 = \chi_1$ | 1 | . | . | . | . | . | . | . | . | . | . | . |
| $1333_1 = \chi_2$ | . | 1 | . | . | . | . | . | . | . | . | . | . |
| $1333_2 = \chi_3$ | . | . | 1 | . | . | . | . | . | . | . | . | . |
| $889111_1 = \chi_8$ | . | . | . | 1 | . | . | . | . | . | . | . | . |
| $32307363_1 = \chi_{15}$ | . | . | . | . | 1 | . | . | . | . | . | . | . |
| $32307363_2 = \chi_{16}$ | . | . | . | . | . | 1 | . | . | . | . | . | . |
| $35411145_1 = \chi_{19}$ | 1 | . | . | . | . | . | . | 1 | . | . | . | . |
| $35411145_2 = \chi_{20}$ | . | . | . | 1 | . | . | 1 | . | . | . | . | . |
| $259775040_1 = \chi_{23}$ | . | . | . | . | . | . | . | 1 | . | 1 | . | . |
| $259775040_2 = \chi_{24}$ | . | . | . | . | 1 | 1 | 1 | . | 1 | . | . | . |
| $1183406741_1 = \chi_{43}$ | . | . | . | . | . | . | . | . | . | 1 | 1 | . |
| $1183406741_2 = \chi_{44}$ | . | 1 | 1 | . | . | . | . | . | 1 | . | . | 1 |
| $1981808640_1 = \chi_{53}$ | . | . | . | . | . | . | . | . | . | . | 1 | 1 |
| $1981808640_2 = \chi_{54}$ | . | . | . | . | . | . | . | . | . | . | 1 | 1 |
| $1981808640_3 = \chi_{55}$ | . | . | . | . | . | . | . | . | . | . | 1 | 1 |

$$\begin{aligned}
\varphi_1 &= 1_1 & \varphi_{19} &= 34522034_1 \\
\varphi_2 &= 1333_1 & \varphi_{20} &= 35411144_1 \\
\varphi_3 &= 1333_2 & \varphi_{22} &= 160638280_1 \\
\varphi_8 &= 889111_1 & \varphi_{23} &= 224363896_1 \\
\varphi_{15} &= 32307363_1 & \varphi_{38} &= 959042845_1 \\
\varphi_{16} &= 32307363_2 & \varphi_{41} &= 1022765795_1
\end{aligned}$$