

1 BLT set 2 over GF(49)

Points on the quadric $x_0^2 + x_1x_2 + x_3x_4$:

$$P_1 = (0, 1, 0, 0, 0)$$

$$P_2 = (0, 0, 1, 0, 0)$$

$$P_3 = (0, 1, 37, 6, 37)$$

$$P_4 = (0, 1, 25, 3, 43)$$

$$P_5 = (0, 1, 43, 2, 31)$$

$$P_6 = (0, 1, 16, 37, 29)$$

$$P_7 = (0, 1, 39, 47, 24)$$

$$P_8 = (0, 1, 8, 25, 9)$$

$$P_9 = (0, 1, 12, 41, 35)$$

$$P_{10} = (0, 1, 17, 11, 7)$$

$$P_{11} = (0, 1, 44, 18, 8)$$

$$P_{12} = (0, 1, 25, 4, 13)$$

$$P_{13} = (1, 2, 24, 8, 23)$$

$$P_{14} = (1, 36, 42, 37, 25)$$

$$P_{15} = (1, 11, 19, 43, 29)$$

$$P_{16} = (0, 1, 16, 19, 27)$$

$$P_{17} = (1, 26, 43, 39, 25)$$

$$P_{18} = (0, 1, 32, 13, 38)$$

$$P_{19} = (0, 1, 24, 22, 15)$$

$$P_{20} = (1, 33, 14, 32, 43)$$

$$P_{21} = (0, 1, 39, 9, 32)$$

$$P_{22} = (1, 10, 28, 32, 47)$$

$$P_{23} = (1, 15, 31, 39, 34)$$

$$P_{24} = (0, 1, 13, 36, 17)$$

$$P_{25} = (1, 14, 47, 41, 13)$$

$$P_{26} = (0, 1, 48, 39, 11)$$

$$\begin{aligned}
P_{27} &= (0, 1, 22, 27, 40) \\
P_{28} &= (1, 36, 42, 5, 29) \\
P_{29} &= (0, 1, 40, 12, 26) \\
P_{30} &= (1, 29, 22, 21, 34) \\
P_{31} &= (0, 1, 35, 21, 3) \\
P_{32} &= (1, 48, 45, 16, 9) \\
P_{33} &= (1, 26, 43, 5, 11) \\
P_{34} &= (1, 48, 45, 25, 33) \\
P_{35} &= (1, 40, 41, 13, 39) \\
P_{36} &= (0, 1, 12, 15, 14) \\
P_{37} &= (1, 29, 22, 23, 3) \\
P_{38} &= (1, 28, 38, 48, 4) \\
P_{39} &= (1, 40, 41, 20, 38) \\
P_{40} &= (1, 28, 38, 28, 36) \\
P_{41} &= (0, 1, 13, 20, 39) \\
P_{42} &= (1, 33, 14, 3, 10) \\
P_{43} &= (0, 1, 7, 24, 46) \\
P_{44} &= (1, 10, 28, 31, 10) \\
P_{45} &= (1, 14, 47, 4, 35) \\
P_{46} &= (0, 1, 31, 33, 22) \\
P_{47} &= (1, 2, 24, 40, 20) \\
P_{48} &= (1, 15, 31, 23, 11) \\
P_{49} &= (1, 11, 19, 37, 18) \\
P_{50} &= (1, 43, 20, 20, 39)
\end{aligned}$$

Stabilizer of order 10000 is generated by:

$$g_1 = \begin{pmatrix} 29 & 0 & 0 & 26 & 28 \\ 0 & 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 & 0 \\ 14 & 0 & 0 & 35 & 14 \\ 41 & 0 & 0 & 22 & 35 \end{pmatrix}, 0$$

with 2402 fixed points

$$g_2 = \begin{pmatrix} 26 & 0 & 0 & 34 & 15 \\ 0 & 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 & 0 \\ 45 & 0 & 0 & 38 & 27 \\ 39 & 0 & 0 & 1 & 38 \end{pmatrix}, 0$$

with 50 fixed points

$$g_3 = \begin{pmatrix} 9 & 0 & 0 & 16 & 23 \\ 0 & 3 & 19 & 5 & 25 \\ 0 & 28 & 3 & 21 & 3 \\ 20 & 3 & 25 & 30 & 3 \\ 48 & 21 & 5 & 26 & 30 \end{pmatrix}, 0$$

with 2 fixed points

$$g_4 = \begin{pmatrix} 17 & 0 & 0 & 35 & 26 \\ 0 & 20 & 32 & 46 & 8 \\ 0 & 35 & 29 & 37 & 2 \\ 16 & 30 & 35 & 37 & 14 \\ 27 & 44 & 41 & 42 & 14 \end{pmatrix}, 1$$

with 8 fixed points

$$g_5 = \begin{pmatrix} 45 & 0 & 0 & 1 & 37 \\ 0 & 1 & 0 & 0 & 0 \\ 0 & 43 & 1 & 2 & 31 \\ 13 & 31 & 0 & 22 & 22 \\ 3 & 2 & 0 & 16 & 22 \end{pmatrix}, 0$$

with 2 fixed points

$$g_6 = \begin{pmatrix} 26 & 0 & 0 & 27 & 31 \\ 0 & 6 & 0 & 0 & 0 \\ 0 & 8 & 6 & 38 & 37 \\ 45 & 11 & 0 & 45 & 11 \\ 39 & 39 & 0 & 26 & 33 \end{pmatrix}, 1$$

with 8 fixed points

$$g_7 = \begin{pmatrix} 0 & 27 & 25 & 33 & 22 \\ 28 & 34 & 5 & 10 & 6 \\ 15 & 27 & 34 & 26 & 5 \\ 19 & 45 & 38 & 37 & 40 \\ 1 & 44 & 46 & 40 & 13 \end{pmatrix}, 0$$

with 0 fixed points The induced group has order 10000 and is generated by:

$$g_1 = (13, 17)(14, 35)(15, 47)(20, 28)(22, 32)(23, 44)(25, 37)(33, 39)(34, 40)(38, 50)(42, 48)(45, 49)$$

$$g_2 = (13, 34, 20, 30, 28, 40, 17, 15, 22, 48, 25, 35, 50, 39, 45, 23, 44, 49, 33, 38, 14, 37, 42, 32, 47)$$

$$g_3 = (1, 12)(2, 3)(4, 5)(6, 8)(7, 10)(9, 11)(13, 20, 28, 17, 22, 25, 50, 45, 44, 33, 14, 42, 47, 34, 30, 40, 15, 48, 35, 39, 23, 49, 38, 37, 32)(16, 21)(18, 43)(24, 41)(26, 46)(27, 29)(31, 36)$$

$$g_4 = (1, 4, 27, 46)(2, 36, 21, 9)(3, 12, 29, 6)(5, 11, 24, 7)(8, 10, 31, 19)(13, 20, 39, 35)(14, 50, 33, 34)(15, 30, 17, 25)(16, 41, 18, 43)(22, 37, 40, 49)(23, 42, 32, 44)(28, 47, 48, 45)$$

$$g_5 = (2, 31)(3, 21)(4, 10)(5, 8)(6, 29)(7, 43)(9, 16)(11, 26)(12, 41)(13, 45, 30, 49, 17, 14, 48, 32, 50, 34, 23, 28, 33, 15, 37, 25, 47, 39, 20, 44, 40, 38, 22, 42, 35)(18, 27)(19, 24)(36, 46)$$

$$g_6 = (2, 18, 31, 27)(3, 5, 21, 8)(4, 46, 10, 36)(6, 26, 29, 11)(7, 16, 43, 9)(12, 19, 41, 24)(13, 45, 44, 20)(14, 47, 37, 49)(15, 23, 48, 34)(17, 42, 25, 38)(28, 35, 50, 40)(30, 33, 39, 32)$$

$$g_7 = (1, 17, 7, 25, 36, 45, 3, 33, 5, 42, 24, 34, 29, 40, 9, 48, 11, 39, 27, 49, 41, 37, 4, 13, 2, 28, 31, 22, 10, 50, 12, 44, 18, 14, 26, 47, 16, 30, 6, 15, 19, 35, 8, 23, 21, 38, 46, 32, 43, 20)$$

Kernel has order 1 and is generated by:

There are 1 orbits on the BLT set.

The orbit length are [50]

The orbits are:

$O_0 = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34,$
(length 50)