1 BLT set 1 over $\mathbf{GF}(49)$

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

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

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

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

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

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

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

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

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

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

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

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

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

$P_{13} = (0, 1, 21, 14, 2)$

$P_{14} = (0, 1, 35, 28, 4)$

$P_{15} = (0, 1, 43, 5, 25)$

$P_{16} = (0, 1, 37, 1, 19)$

$P_{17} = (0, 1, 28, 8, 20)$

$P_{18} = (0, 1, 34, 30, 28)$

$P_{19} = (0, 1, 48, 39, 11)$

$P_{20} = (0, 1, 22, 27, 40)$

$P_{21} = (0, 1, 22, 29, 16)$

$P_{22} = (0, 1, 14, 16, 33)$

$P_{23} = (0, 1, 40, 44, 30)$

$P_{24} = (0, 1, 34, 26, 21)$

$P_{25} = (0, 1, 32, 13, 38)$

$P_{26} = (0, 1, 32, 43, 18)$

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

$P_{28} = (0, 1, 8, 31, 47)$

$P_{29} = (0, 1, 24, 22, 15)$

$P_{30} = (0, 1, 31, 23, 34)$

$P_{31} = (0, 1, 39, 9, 32)$

$P_{32} = (0, 1, 7, 32, 10)$

$P_{33} = (0, 1, 13, 36, 17)$

$P_{34} = (0, 1, 42, 7, 1)$

$P_{35} = (0, 1, 19, 10, 44)$

$P_{36} = (0, 1, 40, 12, 26)$

$P_{37} = (0, 1, 14, 40, 23)$

$P_{38} = (0, 1, 35, 21, 3)$

$P_{39} = (0, 1, 12, 15, 14)$

$P_{40} = (0, 1, 19, 46, 12)$

$P_{41} = (0, 1, 48, 17, 45)$

$P_{42} = (0, 1, 42, 42, 6)$

$P_{43} = (0, 1, 13, 20, 39)$

$P_{44} = (0, 1, 7, 24, 46)$

$P_{45} = (0, 1, 44, 38, 48)$

$P_{46} = (0, 1, 31, 33, 22)$

$P_{47} = (0, 1, 28, 48, 36)$

$P_{48} = (0, 1, 24, 34, 41)$

$P_{49} = (0, 1, 21, 35, 5)$

$P_{50} = (0, 1, 17, 45, 42)$

Stabilizer of order 23520000 is generated by:

$$g_1 = \begin{pmatrix} 45 & 0 & 0 & 17 & 23 \\ 0 & 17 & 0 & 0 & 0 \\ 0 & 33 & 16 & 10 & 48 \\ 13 & 44 & 0 & 27 & 5 \\ 3 & 10 & 0 & 1 & 5 \end{pmatrix}, 1$$

with 50 fixed points

$$g_2 = \begin{pmatrix} 6 & 0 & 0 & 0 & 0 \\ 0 & 39 & 0 & 0 & 0 \\ 0 & 0 & 40 & 0 & 0 \\ 0 & 0 & 0 & 39 & 0 \\ 0 & 0 & 0 & 0 & 40 \end{pmatrix}, 1$$

with 64 fixed points

$$g_3 = \begin{pmatrix} 31 & 0 & 0 & 46 & 44 \\ 0 & 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 & 0 \\ 22 & 0 & 0 & 41 & 33 \\ 23 & 0 & 0 & 29 & 41 \end{pmatrix}, 0$$

with 2500 fixed points

$$g_4 = \begin{pmatrix} 1 & 0 & 0 & 0 & 0 \\ 0 & 6 & 0 & 0 & 0 \\ 0 & 0 & 6 & 0 & 0 \\ 0 & 0 & 0 & 6 & 0 \\ 0 & 0 & 0 & 0 & 6 \end{pmatrix}, 0$$

with 2500 fixed points

$$g_5 = \begin{pmatrix} 31 & 0 & 0 & 46 & 44 \\ 0 & 0 & 43 & 0 & 0 \\ 0 & 35 & 0 & 0 & 0 \\ 34 & 0 & 0 & 16 & 35 \\ 33 & 0 & 0 & 34 & 16 \end{pmatrix}, 0$$

with 2 fixed points

$$g_6 = \begin{pmatrix} 28 & 0 & 0 & 21 & 4 \\ 0 & 6 & 0 & 0 & 0 \\ 0 & 0 & 6 & 0 & 0 \\ 5 & 0 & 0 & 17 & 48 \\ 14 & 0 & 0 & 13 & 17 \end{pmatrix}, 0$$

with 50 fixed points

$$g_7 = \begin{pmatrix} 32 & 0 & 0 & 16 & 9 \\ 0 & 34 & 36 & 39 & 23 \\ 0 & 33 & 0 & 0 & 0 \\ 42 & 34 & 0 & 45 & 1 \\ 11 & 23 & 0 & 3 & 33 \end{pmatrix}, 1$$

with 8 fixed points

$$g_8 = \begin{pmatrix} 31 & 0 & 0 & 25 & 3 \\ 0 & 12 & 0 & 0 & 0 \\ 0 & 33 & 32 & 23 & 32 \\ 34 & 39 & 0 & 1 & 47 \\ 33 & 20 & 0 & 29 & 41 \end{pmatrix}, 1$$

with 2 fixed points

$$g_9 = \begin{pmatrix} 1 & 0 & 0 & 0 & 0 \\ 0 & 12 & 0 & 0 & 0 \\ 0 & 0 & 32 & 0 & 0 \\ 0 & 0 & 0 & 17 & 0 \\ 0 & 0 & 0 & 0 & 16 \end{pmatrix}, 1$$

with 4 fixed points

$$g_{10} = \begin{pmatrix} 6 & 0 & 0 & 0 & 0 \\ 0 & 34 & 0 & 0 & 0 \\ 0 & 0 & 8 & 0 & 0 \\ 0 & 0 & 0 & 39 & 0 \\ 0 & 0 & 0 & 0 & 40 \end{pmatrix}, 1$$

with 4 fixed points

$$g_{11} = \begin{pmatrix} 40 & 0 & 0 & 19 & 29 \\ 0 & 28 & 0 & 0 & 0 \\ 0 & 26 & 31 & 7 & 1 \\ 38 & 28 & 0 & 44 & 7 \\ 43 & 30 & 0 & 39 & 44 \end{pmatrix}, 0$$

with 2 fixed points

$$g_{12} = \begin{pmatrix} 1 & 0 & 0 & 0 & 0 \\ 0 & 42 & 0 & 0 & 0 \\ 0 & 0 & 37 & 0 & 0 \\ 0 & 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 0 & 1 \end{pmatrix}, 0$$

with 52 fixed points The induced group has order 235200 and is generated by:

g_1 =(2, 5)(3, 4)(6, 18)(7, 33)(8, 47)(9, 34)(10, 43)(11, 26)(13, 20)(14, 36)(15, 16)(17, 50)(19, 46)(21, 44)(22, 30)(23, 31)(24, 48)(25, 41)(27, 40)(35, 49)(37, 42)

g_2 =(6, 13)(7, 10)(8, 14)(9, 11)(17, 23)(18, 20)(19, 22)(21, 24)(25, 42)(26, 34)(27, 49)(28, 38)(29, 32)(30, 46)(31, 50)(33, 43)(35, 40)(36, 47)(37, 41)(39, 45)(44, 48)

g_3 =id

g_4 =id

g_5 =(1, 2)(3, 4)(6, 38)(7, 39)(8, 49)(9, 31)(10, 45)(11, 50)(12, 16)(13, 28)(14, 27)(17, 41)(18, 20)(19, 47)(21, 24)(22, 36)(23, 37)(25, 34)(26, 42)(29, 44)(30, 35)(32, 48)(33, 43)(40, 46)

g_6 =id

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

g_8 =(2, 3, 12)(5, 16, 15)(6, 7, 42, 13, 10, 25)(8, 9, 44, 14, 11, 48)(17, 37, 27, 23, 41, 49)(18, 50, 19, 20, 31, 22)(21, 28, 46, 24, 38, 30)(26, 32, 43, 34, 29, 33)(35, 36, 39, 40, 47, 45)

g_9 =(3, 15, 4)(5, 12, 16)(6, 14, 26, 13, 8, 34)(7, 39, 20, 10, 45, 18)(9, 21, 50, 11, 24, 31)(17, 19, 32, 23, 22, 29)(25, 49, 28, 42, 27, 38)(30, 35, 33, 46, 40, 43)(36, 37, 48, 47, 41, 44)

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

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

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

Kernel has order 100 and is generated by:

$$b_1 = \begin{pmatrix} 9 & 0 & 0 & 40 & 33 \\ 0 & 6 & 0 & 0 & 0 \\ 0 & 0 & 6 & 0 & 0 \\ 20 & 0 & 0 & 23 & 10 \\ 48 & 0 & 0 & 9 & 23 \end{pmatrix}, 0$$

$$b_2 = \begin{pmatrix} 12 & 0 & 0 & 14 & 5 \\ 0 & 6 & 0 & 0 & 0 \\ 0 & 0 & 6 & 0 & 0 \\ 1 & 0 & 0 & 30 & 9 \\ 42 & 0 & 0 & 5 & 30 \end{pmatrix}, 0$$

$$b_3 = \begin{pmatrix} 8 & 0 & 0 & 33 & 34 \\ 0 & 6 & 0 & 0 & 0 \\ 0 & 0 & 6 & 0 & 0 \\ 39 & 0 & 0 & 28 & 40 \\ 36 & 0 & 0 & 19 & 28 \end{pmatrix}, 0$$

$$b_4 = \begin{pmatrix} 1 & 0 & 0 & 0 & 0 \\ 0 & 6 & 0 & 0 & 0 \\ 0 & 0 & 6 & 0 & 0 \\ 0 & 0 & 0 & 6 & 0 \\ 0 & 0 & 0 & 0 & 6 \end{pmatrix}, 0$$

The kernel has 2451 orbits on the quadric.

The orbit length are $[50^{2401}, 1^{50}]$

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)