1 BLT set 7 over GF(29)

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

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

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

$P_3 = (0, 1, 14, 28, 14)$

$P_4 = (0, 1, 8, 19, 24)$

$P_5 = (0, 1, 21, 4, 2)$

$P_6 = (0, 1, 15, 12, 6)$

$P_7 = (1, 7, 14, 10, 22)$

$P_8 = (1, 24, 19, 11, 27)$

$P_9 = (1, 8, 16, 8, 2)$

$P_{10} = (1, 2, 4, 6, 13)$

$P_{11} = (1, 10, 20, 26, 9)$

$P_{12} = (1, 3, 6, 13, 3)$

$P_{13} = (1, 16, 3, 20, 28)$

$P_{14} = (1, 12, 24, 21, 18)$

$P_{15} = (1, 15, 13, 18, 2)$

$P_{16} = (1, 28, 11, 16, 26)$

$P_{17} = (1, 20, 27, 16, 26)$

$P_{18} = (1, 18, 7, 9, 2)$

$P_{19} = (1, 21, 1, 18, 2)$

$P_{20} = (1, 17, 16, 19, 7)$

$P_{21} = (1, 8, 5, 19, 7)$

$P_{22} = (1, 16, 3, 10, 27)$

$P_{23} = (1, 18, 13, 28, 3)$

$P_{24} = (1, 2, 4, 15, 11)$

$P_{25} = (1, 21, 7, 28, 3)$

$P_{26} = (1, 23, 27, 27, 21)$

$P_{27} = (1, 24, 19, 7, 1)$

$P_{28} = (1, 28, 17, 27, 21)$

$P_{29} = (1, 13, 11, 18, 21)$

$P_{30} = (1, 20, 26, 18, 21)$

Stabilizer of order 720 is generated by:

$$g_1 = \begin{pmatrix} 14 & 0 & 0 & 19 & 5 \\ 0 & 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 & 0 \\ 12 & 0 & 0 & 22 & 4 \\ 5 & 0 & 0 & 16 & 22 \end{pmatrix}$$

$$g_2 = \begin{pmatrix} 14 & 0 & 0 & 10 & 24 \\ 0 & 9 & 15 & 7 & 18 \\ 0 & 12 & 9 & 25 & 27 \\ 17 & 27 & 18 & 13 & 14 \\ 24 & 25 & 7 & 27 & 13 \end{pmatrix}$$

$$g_3 = \begin{pmatrix} 14 & 0 & 0 & 19 & 5 \\ 0 & 0 & 2 & 0 & 0 \\ 0 & 15 & 0 & 0 & 0 \\ 12 & 0 & 0 & 22 & 4 \\ 5 & 0 & 0 & 16 & 22 \end{pmatrix}$$

$$g_4 = \begin{pmatrix} 12 & 0 & 0 & 5 & 12 \\ 0 & 28 & 0 & 0 & 0 \\ 0 & 0 & 28 & 0 & 0 \\ 6 & 0 & 0 & 8 & 10 \\ 17 & 0 & 0 & 11 & 8 \end{pmatrix}$$

$$g_5 = \begin{pmatrix} 5 & 0 & 18 & 4 & 23 \\ 9 & 20 & 12 & 28 & 2 \\ 0 & 17 & 20 & 4 & 2 \\ 26 & 2 & 2 & 6 & 22 \\ 2 & 4 & 28 & 0 & 6 \end{pmatrix}$$

$$g_6 = \begin{pmatrix} 24 & 20 & 0 & 25 & 6 \\ 0 & 1 & 0 & 0 & 0 \\ 10 & 15 & 1 & 26 & 19 \\ 3 & 19 & 0 & 3 & 26 \\ 27 & 26 & 0 & 18 & 3 \end{pmatrix}$$

Induced action on the BLT-set:

The induced group has order 720 and is generated by:

g_1 =(7, 12, 8)(9, 10, 11)(13, 18, 14)(15, 17, 21)(16, 20, 19)(22, 24, 27)(23, 29, 28)(25, 30, 26)

g_2 =(1, 5)(2, 4)(3, 6)(7, 8, 12)(9, 11, 10)(13, 19, 18, 16, 14, 20)(15, 21, 17)(22, 30, 24, 26, 27, 25)(23, 28, 29)

g_3 =(1, 2)(3, 5)(4, 6)(7, 12, 8)(9, 10, 11)(13, 18, 14)(15, 16, 21, 19, 17, 20)(22, 24, 27)(23, 30, 28, 25, 29, 26)

g_4 =(7, 10)(8, 11)(9, 12)(14, 18)(15, 21)(19, 20)(22, 27)(26, 30)(28, 29)

g_5 =(1, 16)(2, 4)(3, 24)(5, 13)(6, 25)(7, 29)(8, 15)(10, 28)(11, 21)(14, 19)(17, 23)(18, 20)(22, 26)(27, 30)

g_6 =(2, 13)(3, 17)(4, 24)(5, 23)(7, 30)(8, 19)(10, 26)(11, 20)(16, 25)

Kernel has order 1 and is generated by:

There are 1 orbits on the BLT set.

The orbit length are [30]

The orbits are:

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