1 BLT set 2 over GF(41)

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

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

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

$P_3 = (0, 1, 27, 40, 27)$

$P_4 = (0, 1, 17, 20, 34)$

$P_5 = (0, 1, 3, 27, 9)$

$P_6 = (0, 1, 35, 10, 17)$

$P_7 = (0, 1, 30, 22, 21)$

$P_8 = (0, 1, 14, 32, 38)$

$P_9 = (0, 1, 12, 28, 23)$

$P_{10} = (0, 1, 7, 26, 36)$

$P_{11} = (0, 1, 15, 18, 6)$

$P_{12} = (0, 1, 30, 19, 20)$

$P_{13} = (0, 1, 26, 39, 13)$

$P_{14} = (0, 1, 35, 31, 24)$

$P_{15} = (0, 1, 13, 24, 8)$

$P_{16} = (0, 1, 6, 33, 11)$

$P_{17} = (0, 1, 22, 37, 26)$

$P_{18} = (0, 1, 6, 8, 30)$

$P_{19} = (0, 1, 7, 15, 5)$

$P_{20} = (0, 1, 29, 35, 39)$

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

$P_{22} = (1, 6, 37, 23, 1)$

$P_{23} = (1, 36, 17, 12, 7)$

$P_{24} = (1, 6, 37, 3, 35)$

$P_{25} = (1, 8, 22, 35, 9)$

$P_{26} = (1, 34, 32, 4, 25)$

$P_{27} = (1, 34, 32, 34, 15)$

$P_{28} = (1, 39, 15, 37, 3)$

$P_{29} = (1, 4, 11, 13, 6)$

$P_{30} = (1, 31, 34, 12, 18)$

$P_{31} = (1, 4, 11, 18, 18)$

$P_{32} = (1, 11, 20, 14, 34)$

$P_{33} = (1, 8, 22, 27, 39)$

$P_{34} = (1, 26, 10, 34, 8)$

$P_{35} = (1, 36, 17, 21, 4)$

$P_{36} = (1, 1, 13, 9, 3)$

$P_{37} = (1, 26, 10, 24, 25)$

$P_{38} = (1, 20, 14, 38, 39)$

$P_{39} = (1, 20, 14, 35, 40)$

$P_{40} = (1, 11, 20, 20, 32)$

$P_{41} = (1, 31, 34, 13, 4)$

$P_{42} = (1, 39, 15, 9, 26)$

Stabilizer of order 3528 is generated by:

$$g_1 = \begin{pmatrix} 31 & 0 & 0 & 16 & 22 \\ 0 & 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 & 0 \\ 30 & 0 & 0 & 16 & 36 \\ 33 & 0 & 0 & 37 & 16 \end{pmatrix}$$

$$g_2 = \begin{pmatrix} 8 & 0 & 0 & 5 & 12 \\ 0 & 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 & 0 \\ 6 & 0 & 0 & 17 & 22 \\ 23 & 0 & 0 & 34 & 17 \end{pmatrix}$$

$$g_3 = \begin{pmatrix} 35 & 0 & 0 & 33 & 30 \\ 0 & 2 & 34 & 40 & 27 \\ 0 & 35 & 2 & 6 & 2 \\ 26 & 2 & 27 & 16 & 21 \\ 4 & 6 & 40 & 25 & 16 \end{pmatrix}$$

$$g_4 = \begin{pmatrix} 35 & 0 & 0 & 8 & 11 \\ 0 & 39 & 35 & 28 & 23 \\ 0 & 19 & 39 & 14 & 32 \\ 26 & 32 & 23 & 26 & 34 \\ 4 & 14 & 28 & 19 & 26 \end{pmatrix}$$

$$g_5 = \begin{pmatrix} 35 & 0 & 0 & 33 & 30 \\ 0 & 1 & 0 & 0 & 0 \\ 0 & 3 & 1 & 14 & 32 \\ 26 & 32 & 0 & 17 & 35 \\ 4 & 14 & 0 & 28 & 17 \end{pmatrix}$$

$$g_6 = \begin{pmatrix} 0 & 20 & 4 & 38 & 40 \\ 28 & 27 & 23 & 37 & 13 \\ 24 & 21 & 27 & 19 & 24 \\ 13 & 30 & 30 & 25 & 13 \\ 39 & 1 & 27 & 5 & 2 \end{pmatrix}$$

Induced action on the BLT-set:

The induced group has order 3528 and is generated by:

g_1 =(22, 34, 23, 32, 28, 25, 38, 30, 41, 39, 33, 42, 40, 35, 37, 24, 27, 29, 36, 31, 26)

g_2 =(22, 26)(23, 36)(24, 25)(27, 28)(29, 32)(30, 35)(31, 34)(37, 38)(39, 42)(40, 41)

g_3 =(1, 4)(2, 3)(5, 6)(7, 8)(10, 11)(12, 13)(14, 15)(16, 17)(18, 19)(20, 21)(22, 31, 29, 24, 35, 42, 39, 30, 25, 32, 34, 26, 36, 27, 37, 40, 33, 41, 38, 28, 23)

g_4 =(1, 5)(2, 11)(3, 16)(4, 12)(6, 9)(7, 13)(8, 15)(10, 18)(14, 19)(17, 21)(22, 29)(23, 24)(25, 40)(26, 36)(27, 34)(28, 35)(30, 33)(32, 37)(38, 42)(39, 41)

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

g_6 =(1, 39, 16, 27)(2, 22, 12, 28)(3, 29, 4, 41)(5, 32, 17, 34)(6, 37, 21, 42)(7, 26, 10, 25)(8, 36, 18, 30)(9, 31, 20, 38)(11, 40, 13, 35)(14, 23)(15, 24, 19, 33)

Kernel has order 1 and is generated by:

There are 1 orbits on the BLT set.

The orbit length are [42]

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 42)