1 BLT set 8 over GF(41)

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

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

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

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

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

$P_5 = (0, 1, 30, 5, 35)$

$P_6 = (1, 17, 25, 25, 1)$

$P_7 = (1, 23, 38, 3, 9)$

$P_8 = (1, 35, 37, 32, 21)$

$P_9 = (1, 3, 25, 12, 21)$

$P_{10} = (1, 8, 13, 27, 28)$

$P_{11} = (1, 21, 24, 30, 31)$

$P_{12} = (1, 31, 12, 21, 33)$

$P_{13} = (1, 22, 16, 39, 33)$

$P_{14} = (1, 19, 36, 19, 33)$

$P_{15} = (1, 5, 19, 39, 7)$

$P_{16} = (1, 15, 1, 27, 7)$

$P_{17} = (1, 7, 39, 37, 7)$

$P_{18} = (1, 18, 34, 5, 25)$

$P_{19} = (1, 35, 8, 36, 7)$

$P_{20} = (1, 12, 18, 21, 17)$

$P_{21} = (1, 3, 23, 14, 36)$

$P_{22} = (1, 37, 29, 31, 9)$

$P_{23} = (1, 14, 10, 32, 2)$

$P_{24} = (1, 1, 34, 9, 28)$

$P_{25} = (1, 4, 13, 11, 25)$

$P_{26} = (1, 5, 27, 8, 24)$

$P_{27} = (1, 11, 39, 6, 24)$

$P_{28} = (1, 24, 4, 10, 19)$

$P_{29} = (1, 4, 35, 12, 19)$

$P_{30} = (1, 28, 4, 14, 30)$

$P_{31} = (1, 34, 10, 18, 38)$

$P_{32} = (1, 24, 9, 21, 17)$

$P_{33} = (1, 33, 13, 35, 17)$

$P_{34} = (1, 9, 28, 11, 18)$

$P_{35} = (1, 27, 39, 15, 9)$

$P_{36} = (1, 8, 11, 15, 5)$

$P_{37} = (1, 16, 29, 2, 34)$

$P_{38} = (1, 3, 32, 8, 34)$

$P_{39} = (1, 36, 38, 40, 16)$

$P_{40} = (1, 27, 20, 32, 10)$

$P_{41} = (1, 30, 36, 28, 39)$

$P_{42} = (1, 8, 14, 36, 39)$

Stabilizer of order 84 is generated by:

$$g_1 = \begin{pmatrix} 30 & 0 & 0 & 14 & 9 \\ 0 & 1 & 27 & 40 & 27 \\ 0 & 0 & 1 & 0 & 0 \\ 25 & 0 & 27 & 5 & 39 \\ 7 & 0 & 40 & 23 & 5 \end{pmatrix}$$

$$g_2 = \begin{pmatrix} 19 & 0 & 8 & 28 & 34 \\ 4 & 32 & 11 & 26 & 30 \\ 0 & 26 & 32 & 28 & 23 \\ 17 & 23 & 30 & 40 & 36 \\ 14 & 28 & 26 & 22 & 40 \end{pmatrix}$$

$$g_3 = \begin{pmatrix} 3 & 0 & 0 & 5 & 23 \\ 35 & 20 & 28 & 38 & 21 \\ 0 & 22 & 0 & 0 & 0 \\ 15 & 20 & 0 & 29 & 29 \\ 19 & 19 & 0 & 27 & 17 \end{pmatrix}$$

$$g_4 = \begin{pmatrix} 24 & 23 & 0 & 4 & 10 \\ 0 & 1 & 0 & 0 & 0 \\ 32 & 30 & 1 & 16 & 11 \\ 5 & 11 & 0 & 8 & 2 \\ 2 & 16 & 0 & 20 & 8 \end{pmatrix}$$

Induced action on the BLT-set:

The induced group has order 84 and is generated by:

g_1 =(1, 3)(5, 24)(6, 22)(7, 37)(8, 39)(9, 36)(10, 33)(11, 41)(12, 13)(14, 27)(15, 21)(16, 32)(17, 40)(18, 34)(19, 31)(20, 30)(23, 29)(25, 35)(26, 38)(28, 42)

g_2 =(1, 10)(2, 4)(3, 33)(5, 22)(6, 24)(7, 39)(8, 37)(9, 30)(11, 38)(12, 32)(13, 16)(14, 29)(15, 34)(17, 19)(18, 21)(20, 36)(23, 27)(25, 42)(26, 41)(28, 35)(31, 40)

g_3 =(1, 32, 41, 5, 18, 35, 27, 9, 19, 39, 8, 31, 36, 14, 25, 34, 24, 11, 16, 3, 2)(4, 20, 21, 38, 7, 12, 42, 23, 33, 40, 22, 6, 17, 10, 29, 28, 13, 37, 26, 15, 30)

g_4 =(2, 32)(3, 41)(4, 21)(5, 16)(6, 17)(7, 15)(8, 31)(9, 25)(10, 22)(11, 18)(12, 26)(13, 23)(14, 19)(24, 35)(27, 34)(28, 33)(29, 40)(30, 38)(36, 39)(37, 42)

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)