1 BLT set 9 over GF(41)

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

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

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

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

$P_4 = (0, 1, 3, 27, 9)$

$P_5 = (0, 1, 38, 10, 29)$

$P_6 = (0, 1, 14, 35, 16)$

$P_7 = (1, 24, 5, 2, 1)$

$P_8 = (1, 29, 31, 39, 40)$

$P_9 = (1, 7, 39, 39, 14)$

$P_{10} = (1, 30, 23, 16, 26)$

$P_{11} = (1, 29, 33, 25, 24)$

$P_{12} = (1, 26, 1, 4, 24)$

$P_{13} = (1, 24, 33, 15, 10)$

$P_{14} = (1, 14, 4, 23, 10)$

$P_{15} = (1, 37, 14, 26, 10)$

$P_{16} = (1, 25, 34, 1, 10)$

$P_{17} = (1, 7, 32, 18, 8)$

$P_{18} = (1, 11, 32, 4, 4)$

$P_{19} = (1, 11, 36, 14, 39)$

$P_{20} = (1, 19, 39, 3, 26)$

$P_{21} = (1, 33, 30, 40, 7)$

$P_{22} = (1, 1, 12, 21, 15)$

$P_{23} = (1, 13, 33, 38, 34)$

$P_{24} = (1, 28, 18, 8, 24)$

$P_{25} = (1, 8, 17, 37, 24)$

$P_{26} = (1, 7, 4, 31, 7)$

$P_{27} = (1, 11, 8, 33, 6)$

$P_{28} = (1, 40, 28, 23, 19)$

$P_{29} = (1, 19, 9, 15, 35)$

$P_{30} = (1, 36, 12, 38, 35)$

$P_{31} = (1, 1, 3, 32, 5)$

$P_{32} = (1, 4, 15, 13, 30)$

$P_{33} = (1, 9, 26, 40, 30)$

$P_{34} = (1, 5, 28, 1, 23)$

$P_{35} = (1, 37, 14, 30, 36)$

$P_{36} = (1, 26, 31, 22, 36)$

$P_{37} = (1, 27, 21, 27, 23)$

$P_{38} = (1, 4, 28, 25, 25)$

$P_{39} = (1, 24, 39, 28, 9)$

$P_{40} = (1, 9, 27, 18, 32)$

$P_{41} = (1, 9, 30, 17, 13)$

$P_{42} = (1, 31, 15, 28, 39)$

Stabilizer of order 84 is generated by:

$$g_1 = \begin{pmatrix} 33 & 0 & 0 & 5 & 12 \\ 0 & 0 & 32 & 0 & 0 \\ 0 & 9 & 0 & 0 & 0 \\ 6 & 0 & 0 & 24 & 19 \\ 23 & 0 & 0 & 7 & 24 \end{pmatrix}$$

$$g_2 = \begin{pmatrix} 7 & 0 & 11 & 28 & 10 \\ 0 & 8 & 24 & 11 & 31 \\ 9 & 17 & 1 & 36 & 36 \\ 1 & 8 & 20 & 2 & 22 \\ 29 & 24 & 6 & 32 & 32 \end{pmatrix}$$

$$g_3 = \begin{pmatrix} 7 & 19 & 0 & 11 & 18 \\ 0 & 1 & 0 & 0 & 0 \\ 30 & 24 & 1 & 11 & 39 \\ 9 & 39 & 0 & 37 & 10 \\ 26 & 11 & 0 & 5 & 37 \end{pmatrix}$$

Induced action on the BLT-set:

The induced group has order 84 and is generated by:

g_1 =(1, 2)(3, 4)(5, 30)(6, 27)(7, 11)(8, 38)(9, 26)(10, 18)(12, 20)(13, 16)(14, 15)(17, 37)(19, 29)(21, 31)(22, 41)(23, 35)(24, 40)(25, 32)(28, 34)(33, 39)(36, 42)

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

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

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)