1 BLT set 6 over GF(59)

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

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

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

$P_3 = (0, 1, 29, 58, 29)$

$P_4 = (0, 1, 22, 29, 44)$

$P_5 = (0, 1, 3, 49, 18)$

$P_6 = (1, 43, 42, 7, 20)$

$P_7 = (1, 28, 45, 22, 58)$

$P_8 = (1, 24, 33, 25, 32)$

$P_9 = (1, 23, 33, 38, 39)$

$P_{10} = (1, 33, 40, 18, 2)$

$P_{11} = (1, 57, 25, 7, 7)$

$P_{12} = (1, 51, 53, 44, 19)$

$P_{13} = (1, 40, 2, 46, 38)$

$P_{14} = (1, 11, 52, 49, 16)$

$P_{15} = (1, 21, 41, 52, 22)$

$P_{16} = (1, 11, 56, 14, 36)$

$P_{17} = (1, 9, 48, 1, 39)$

$P_{18} = (1, 28, 15, 52, 18)$

$P_{19} = (1, 11, 56, 1, 32)$

$P_{20} = (1, 16, 3, 50, 12)$

$P_{21} = (1, 16, 57, 24, 48)$

$P_{22} = (1, 56, 14, 55, 34)$

$P_{23} = (1, 5, 57, 7, 35)$

$P_{24} = (1, 38, 18, 4, 50)$

$P_{25} = (1, 20, 35, 46, 4)$

$P_{26} = (1, 54, 44, 20, 8)$

$P_{27} = (1, 8, 58, 9, 27)$

$P_{28} = (1, 27, 28, 55, 27)$

$P_{29} = (1, 45, 5, 34, 35)$

$P_{30} = (1, 24, 38, 1, 31)$

$P_{31} = (1, 23, 54, 58, 4)$

$P_{32} = (1, 26, 28, 21, 58)$

$P_{33} = (1, 39, 24, 39, 38)$

$P_{34} = (1, 27, 21, 22, 1)$

$P_{35} = (1, 46, 1, 48, 15)$

$P_{36} = (1, 45, 16, 50, 8)$

$P_{37} = (1, 28, 20, 10, 56)$

$P_{38} = (1, 55, 11, 31, 9)$

$P_{39} = (1, 32, 39, 35, 25)$

$P_{40} = (1, 34, 18, 17, 16)$

$P_{41} = (1, 5, 26, 48, 28)$

$P_{42} = (1, 49, 22, 20, 8)$

$P_{43} = (1, 6, 10, 27, 48)$

$P_{44} = (1, 4, 16, 53, 1)$

$P_{45} = (1, 58, 6, 55, 43)$

$P_{46} = (0, 1, 36, 36, 58)$

$P_{47} = (1, 43, 23, 1, 13)$

$P_{48} = (1, 9, 19, 55, 43)$

$P_{49} = (1, 43, 42, 49, 45)$

$P_{50} = (1, 15, 1, 57, 8)$

$P_{51} = (1, 52, 14, 6, 26)$

$P_{52} = (1, 21, 9, 11, 31)$

$P_{53} = (1, 32, 13, 7, 50)$

$P_{54} = (1, 55, 39, 10, 45)$

$P_{55} = (1, 19, 48, 53, 44)$

$P_{56} = (1, 42, 34, 25, 16)$

$P_{57} = (1, 58, 10, 44, 23)$

$P_{58} = (1, 18, 42, 11, 17)$

$P_{59} = (1, 34, 44, 39, 7)$

$P_{60} = (1, 19, 25, 23, 46)$

Stabilizer of order 120 is generated by:

$$g_1 = \begin{pmatrix} 24 & 0 & 0 & 18 & 50 \\ 0 & 57 & 15 & 1 & 30 \\ 0 & 4 & 57 & 55 & 57 \\ 25 & 57 & 30 & 19 & 51 \\ 9 & 55 & 1 & 27 & 19 \end{pmatrix}$$

with 62 fixed points

$$g_2 = \begin{pmatrix} 41 & 58 & 0 & 8 & 26 \\ 0 & 17 & 21 & 42 & 21 \\ 29 & 1 & 17 & 26 & 26 \\ 13 & 26 & 21 & 22 & 56 \\ 4 & 26 & 42 & 14 & 22 \end{pmatrix}$$

with 60 fixed points

$$g_3 = \begin{pmatrix} 38 & 52 & 0 & 18 & 28 \\ 0 & 58 & 0 & 0 & 0 \\ 26 & 30 & 58 & 1 & 3 \\ 14 & 3 & 0 & 11 & 9 \\ 9 & 1 & 0 & 57 & 11 \end{pmatrix}$$

with 60 fixed points The induced group has order 120 and is generated by:

g_1 =(2, 3)(5, 59)(6, 56)(7, 57)(8, 23)(9, 31)(10, 39)(11, 20)(12, 58)(13, 14)(15, 38)(16, 22)(17, 32)(18, 24)(19, 34)(21, 28)(25, 49)(26, 60)(27, 40)(29, 50)(30, 55)(33, 37)(35, 54)(36, 48)(41, 44)(42, 43)(45, 47)(46, 53)(51, 52)(1, 4)

g_2 =(27)(53)(4, 56)(6, 52)(7, 42)(8, 10)(12, 49)(22, 46)(13, 44)(14, 23)(15, 58)(16, 34)(17, 35)(19, 30)(21, 48)(9, 18)(24, 39)(25, 59)(26, 43)(5, 20)(28, 38)(29, 32)(31, 54)(33, 55)(36,

50)(37, 45)(40, 57)(41, 51)(47, 60)(2, 11)(1, 3)

g_3 =(17)(1)(3, 26)(5, 57)(6, 37)(7, 15)(9, 36)(19, 44)(10, 38)(11, 42)(12, 40)(13, 49)(14, 16)(48, 60)(18, 22)(8, 46)(20, 52)(21, 24)(23, 58)(25, 27)(28, 43)(29, 54)(30, 35)(31, 34)(32, 33)(39, 53)(41, 59)(45, 50)(4, 47)(51, 55)(2, 56)

Kernel has order 1 and is generated by:

There are 1 orbits on the BLT set.

The orbit length are [60]

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 60)