

# 1 BLT set 4 over GF(11)

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

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

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

$$P_3 = (0, 1, 5, 10, 5)$$

$$P_4 = (0, 1, 5, 5, 10)$$

$$P_5 = (1, 6, 2, 9, 1)$$

$$P_6 = (1, 5, 9, 10, 2)$$

$$P_7 = (1, 8, 8, 2, 6)$$

$$P_8 = (1, 4, 3, 2, 10)$$

$$P_9 = (1, 3, 3, 5, 9)$$

$$P_{10} = (1, 5, 4, 9, 5)$$

$$P_{11} = (1, 7, 8, 1, 9)$$

$$P_{12} = (1, 6, 7, 6, 2)$$

Stabilizer of order 1320 is generated by:

$$g_1 = \begin{pmatrix} 6 & 9 & 0 & 8 & 8 \\ 0 & 9 & 1 & 1 & 2 \\ 10 & 5 & 9 & 2 & 10 \\ 4 & 10 & 2 & 5 & 6 \\ 4 & 2 & 1 & 3 & 5 \end{pmatrix}$$

$$g_2 = \begin{pmatrix} 1 & 0 & 0 & 0 & 0 \\ 0 & 10 & 0 & 0 & 0 \\ 0 & 0 & 10 & 0 & 0 \\ 0 & 0 & 0 & 0 & 10 \\ 0 & 0 & 0 & 10 & 0 \end{pmatrix}$$

$$g_3 = \begin{pmatrix} 6 & 9 & 0 & 8 & 8 \\ 0 & 7 & 0 & 0 & 0 \\ 0 & 6 & 8 & 5 & 8 \\ 6 & 6 & 0 & 10 & 3 \\ 10 & 2 & 0 & 5 & 2 \end{pmatrix}$$

$$g_4 = \begin{pmatrix} 7 & 0 & 0 & 2 & 9 \\ 0 & 7 & 0 & 0 & 0 \\ 0 & 0 & 8 & 0 & 0 \\ 1 & 0 & 0 & 3 & 7 \\ 10 & 0 & 0 & 7 & 3 \end{pmatrix}$$

Induced action on the BLT-set:

The induced group has order 1320 and is generated by:

$$g_1 = (1, 4)(2, 5)(7, 8)(9, 10)(11, 12)$$

$$g_2 = (3, 4)(5, 6)(7, 9)(8, 11)(10, 12)$$

$$g_3 = (2, 3, 4, 5, 10)(6, 11, 9, 12, 7)$$

$$g_4 = (3, 7, 8, 6, 12, 4, 9, 11, 5, 10)$$

Kernel has order 1 and is generated by:

There are 1 orbits on the BLT set.

The orbit length are [12]

The orbits are:

$$O_0 = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12\} \text{ (length 12)}$$