Rank-74279 over GF(32)

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The equation

The equation of the surface is :

$$X_2^3 + X_0^2X_2 + X_1^2X_3 + X_0X_3^2 + X_0X_1X_2 = 0$$

(0, 0, 1, 0, 0, 1, 0, 0, 0, 1, 0, 0, 0, 1, 0, 0, 1, 0, 0, 0)
The point rank of the equation over GF(32) is 1141934117

General information

Number of lines	1
Number of points	1057
Number of singular points	0
Number of Eckardt points	0
Number of double points	0
Number of single points	33
Number of points off lines	1024
Number of Hesse planes	0
Number of axes	0
Type of points on lines	33
Type of lines on points	1^{33}, 0^{1024}

Singular Points

The surface has 0 singular points:

The 1 Lines

The lines and their Pluecker coordinates are:

$$\ell_0 = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \end{bmatrix}_0 = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \end{bmatrix}_0 = \mathbf{Pl}(1,0,0,0,0,0)_0$$

Rank of lines: (0)
Rank of points on Klein quadric: (0)

Eckardt Points

The surface has 0 Eckardt points:

Double Points

The surface has 0 Double points:
The double points on the surface are:

Single Points

The surface has 33 single points:
The single points on the surface are:

0 : $P_0 = (1,0,0,0)$ lies on line ℓ_0
1 : $P_1 = (0,1,0,0)$ lies on line ℓ_0
2 : $P_5 = (1,1,0,0)$ lies on line ℓ_0
3 : $P_6 = (2,1,0,0)$ lies on line ℓ_0
4 : $P_7 = (3,1,0,0)$ lies on line ℓ_0
5 : $P_8 = (4,1,0,0)$ lies on line ℓ_0
6 : $P_9 = (5,1,0,0)$ lies on line ℓ_0
7 : $P_{10} = (6,1,0,0)$ lies on line ℓ_0
8 : $P_{11} = (7,1,0,0)$ lies on line ℓ_0
9 : $P_{12} = (8,1,0,0)$ lies on line ℓ_0
10 : $P_{13} = (9,1,0,0)$ lies on line ℓ_0
11 : $P_{14} = (10,1,0,0)$ lies on line ℓ_0
12 : $P_{15} = (11,1,0,0)$ lies on line ℓ_0
13 : $P_{16} = (12,1,0,0)$ lies on line ℓ_0
14 : $P_{17} = (13,1,0,0)$ lies on line ℓ_0
15 : $P_{18} = (14,1,0,0)$ lies on line ℓ_0
16 : $P_{19} = (15,1,0,0)$ lies on line ℓ_0
17 : $P_{20} = (16,1,0,0)$ lies on line ℓ_0
18 : $P_{21} = (17,1,0,0)$ lies on line ℓ_0
19 : $P_{22} = (18,1,0,0)$ lies on line ℓ_0
20 : $P_{23} = (19,1,0,0)$ lies on line ℓ_0
21 : $P_{24} = (20,1,0,0)$ lies on line ℓ_0
22 : $P_{25} = (21,1,0,0)$ lies on line ℓ_0
23 : $P_{26} = (22,1,0,0)$ lies on line ℓ_0
24 : $P_{27} = (23,1,0,0)$ lies on line ℓ_0
25 : $P_{28} = (24,1,0,0)$ lies on line ℓ_0
26 : $P_{29} = (25,1,0,0)$ lies on line ℓ_0
27 : $P_{30} = (26,1,0,0)$ lies on line ℓ_0
28 : $P_{31} = (27,1,0,0)$ lies on line ℓ_0
29 : $P_{32} = (28,1,0,0)$ lies on line ℓ_0
30 : $P_{33} = (29,1,0,0)$ lies on line ℓ_0
31 : $P_{34} = (30,1,0,0)$ lies on line ℓ_0
32 : $P_{35} = (31,1,0,0)$ lies on line ℓ_0

The single points on the surface are:

Points on surface but on no line

The surface has 1024 points not on any line:
Too many to print.

Line Intersection Graph

	0
0	0

Neighbor sets in the line intersection graph:
Line 0 intersects

Line
in point

The surface has 1057 points:
Too many to print.