Rank-66764 over GF(32)

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The equation

The equation of the surface is :

$$X_0^3 + X_3^3 + X_0^2X_3 + X_0X_1^2 + X_0X_2^2 + X_0X_1X_2 = 0$$

(1, 0, 0, 1, 0, 0, 1, 1, 0, 0, 1, 0, 0, 0, 0, 0, 1, 0, 0, 0)
The point rank of the equation over GF(32) is -2112814042

General information

Number of lines	1
Number of points	1089
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	1056
Number of Hesse planes	0
Number of axes	0
Type of points on lines	33
Type of lines on points	1^{33}, 0^{1056}

Singular Points

The surface has 0 singular points:

The 1 Lines

The lines and their Pluecker coordinates are:

$$\ell_0 = \begin{bmatrix} 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \end{bmatrix}_{1082368} = \begin{bmatrix} 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \end{bmatrix}_{1082368} = \mathbf{Pl}(0,0,0,0,0,1)_{34849}$$

Rank of lines: (1082368)
Rank of points on Klein quadric: (34849)

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 : $P_1 = (0,1,0,0)$ lies on line ℓ_0
1 : $P_2 = (0,0,1,0)$ lies on line ℓ_0
2 : $P_{67} = (0,1,1,0)$ lies on line ℓ_0
3 : $P_{99} = (0,2,1,0)$ lies on line ℓ_0
4 : $P_{131} = (0,3,1,0)$ lies on line ℓ_0
5 : $P_{163} = (0,4,1,0)$ lies on line ℓ_0
6 : $P_{195} = (0,5,1,0)$ lies on line ℓ_0
7 : $P_{227} = (0,6,1,0)$ lies on line ℓ_0
8 : $P_{259} = (0,7,1,0)$ lies on line ℓ_0
9 : $P_{291} = (0,8,1,0)$ lies on line ℓ_0
10 : $P_{323} = (0,9,1,0)$ lies on line ℓ_0
11 : $P_{355} = (0,10,1,0)$ lies on line ℓ_0
12 : $P_{387} = (0,11,1,0)$ lies on line ℓ_0
13 : $P_{419} = (0,12,1,0)$ lies on line ℓ_0
14 : $P_{451} = (0,13,1,0)$ lies on line ℓ_0
15 : $P_{483} = (0,14,1,0)$ lies on line ℓ_0
16 : $P_{515} = (0,15,1,0)$ lies on line ℓ_0
17 : $P_{547} = (0,16,1,0)$ lies on line ℓ_0
18 : $P_{579} = (0,17,1,0)$ lies on line ℓ_0
19 : $P_{611} = (0,18,1,0)$ lies on line ℓ_0
20 : $P_{643} = (0,19,1,0)$ lies on line ℓ_0
21 : $P_{675} = (0,20,1,0)$ lies on line ℓ_0
22 : $P_{707} = (0,21,1,0)$ lies on line ℓ_0
23 : $P_{739} = (0,22,1,0)$ lies on line ℓ_0
24 : $P_{771} = (0,23,1,0)$ lies on line ℓ_0
25 : $P_{803} = (0,24,1,0)$ lies on line ℓ_0
26 : $P_{835} = (0,25,1,0)$ lies on line ℓ_0
27 : $P_{867} = (0,26,1,0)$ lies on line ℓ_0
28 : $P_{899} = (0,27,1,0)$ lies on line ℓ_0
29 : $P_{931} = (0,28,1,0)$ lies on line ℓ_0
30 : $P_{963} = (0,29,1,0)$ lies on line ℓ_0
31 : $P_{995} = (0,30,1,0)$ lies on line ℓ_0
32 : $P_{1027} = (0,31,1,0)$ lies on line ℓ_0

The single points on the surface are:

Points on surface but on no line

The surface has 1056 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 1089 points:
Too many to print.