

Stagnaro, Ezio**On rational non-singular curves of degree 4 in \mathbb{P}_k^3 .** (Italian. English summary) Zbl 0545.14025
Rend. Accad. Naz. Sci. Detta XL, V. Ser., Mem. Mat. 7, No. 1, 51-87 (1983).

Summary: The purpose of this paper is to prove the following theorem: let C_4 be a rational non-singular quartic in \mathbb{P}_k^3 , k algebraically closed field of characteristic $p \neq 2, 3$; then it is not possible to find two surfaces F_3, F_4 in \mathbb{P}_k^3 , of degree 3,4 respectively, such that the complete intersection $F_3 \cdot F_4$ of F_3 and F_4 is $3C_4$. - Moreover, in characteristic $p = 3$, we show that there exist C_4, F_3, F_4 such that $F_3 \cdot F_4 = 3C_4$ determining a family \mathcal{F} of C_4 satisfying the above property, and we prove that, under a certain hypothesis, if C_4 is a rational non-singular quartic in \mathbb{P}_k^3 such that there exist F_3 and F_4 with $F_3 \cdot F_4 = 3C_4$, then the characteristic of k is $p = 3$ and C_4 belongs to \mathcal{F} .

MSC:

- [14H45](#) Special algebraic curves and curves of low genus
- [14M07](#) Low codimension problems in algebraic geometry
- [14M10](#) Complete intersections
- [14G15](#) Finite ground fields in algebraic geometry

Cited in **2** Reviews
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Keywords:

rational quartic curve in projective 3-space; complete intersection; characteristic 3