

Relative linear extensions of sextic del Pezzo fibrations over curves

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Abstract. In this paper, we study a sextic del Pezzo fibration over a curve comprehensively. We obtain certain formulae of several basic invariants of such a fibration. We also establish the embedding theorem of such a fibration which asserts that every such a fibration is a relative linear section of a Mori fiber space with a general fiber $(\mathbb{P}^1)^3$ and that with a general fiber $(\mathbb{P}^2)^2$. As an application of this embedding theorem, we classify singular fibers of such a fibration and answer a question of T. Fujita about the existence of non-normal fibers.

Mathematics Subject Classification (2010): 14E25 (primary); 14E30 (secondary).