

Algebraic Geometry - Mariusz Koras in memoriam

Warsaw, 28.05.2018 - 01.06.2018



ON SOME AFFINE PLANE BUNDLES OVER THE PUNCTURED AFFINE PLANE

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ABSTRACT. An \mathbb{A}^2 -fibration is a flat morphism between complex algebraic varieties whose fibers are isomorphic to the complex affine plane \mathbb{A}^2 . In this talk, we study explicit families $f: \mathbb{A}^4 \rightarrow \mathbb{A}^2$ of \mathbb{A}^2 -fibrations over \mathbb{A}^2 .

The famous Dolgachev-Weisfeiler conjecture predicts that such fibrations are in fact all isomorphic to the trivial bundle over \mathbb{A}^2 . Our aim is to develop tools for verifying that this conjecture holds true in some particular examples. For instance, we will recover a result of Drew Lewis which states that the \mathbb{A}^2 -fibration induced by the second Vénéreau polynomial is trivial.

Our strategy is inspired by a previous work of Kaliman and Zaidenberg and consists in first showing that the considered fibrations $f: \mathbb{A}^4 \rightarrow \mathbb{A}^2$ have a fiber bundle structure when restricted over the punctured plane $\mathbb{A}^2 \setminus \{(0,0)\}$.

This is joint work in progress with Jérémy Blanc.