

AUTOMORPHISM GROUPS OF KORAS-RUSSELL THREEFOLDS

Petitjean Charlie

Université de Bourgogne, France

The Koras–Russel threefolds are smooth contractible rational affine varieties, they can be described as hypersurfaces in $\mathbb{A}_{\mathbb{C}}^4$ [1]. Although close to $\mathbb{A}_{\mathbb{C}}^3$ these varieties are not isomorphic to $\mathbb{A}_{\mathbb{C}}^3$, this has been demonstrated using the Makar-Limanov invariant [2].

A first part will focus on the construction of these varieties, a second on the study of the automorphism groups using their Makar-Limanov invariants [3, 4], that is, considering additive group actions on them. The third part will be about rational properties related to torus actions on these threefolds.

References

- [1] KORAS, M. AND RUSSELL, PETER, *Contractible threefolds and \mathbb{C}^* -actions on \mathbb{C}^3* , J. Algebraic Geom. 6 (1997), no. 4, 671–695.
- [2] KALIMAN, SHULIM AND MAKAR-LIMANOV, LEONID, *On the Russell-Koras contractible threefolds*, J. Algebraic Geom. 6 (1997), no. 2, 247–268.
- [3] MOSER-JAUSLIN, LUCY, *Automorphism groups of Koras-Russell threefolds of the first kind*, CRM Proc. Lecture Notes, 54, Amer. Math. Soc., Providence, RI, 2011.
- [4] PETITJEAN, CHARLIE, *Automorphism groups of Koras-Russell threefolds of the second kind*, Beitr. Algebra Geom. 57 (2016), no. 3, 599–605.