

\mathbb{A}^1 -homotopy theory and affine algebraic geometry

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In \mathbb{A}^1 -homotopy theory we apply techniques from algebraic topology to algebraic varieties. The affine line \mathbb{A}^1 plays the role of the unit interval. \mathbb{A}^1 -homotopy theory provides many new applications, also in affine algebraic geometry. Nontrivial affine \mathbb{A}^1 -contractible varieties serve as potential counter examples to the Zaraski cancellation problem which is still unsolved in dimension greater or equal to 3 and characteristic 0. In my talk I will give an introduction to \mathbb{A}^1 -homotopy theory. In particular, I will try to provide tools that can be useful in affine algebraic geometry.

References

- [1] DUBOULOZ, ADRIEN; PAULI, SABRINA; ØSTVÆR, PAUL ARNE , *A1 contractibility of affine modifications*, Preprint available at <https://arxiv.org/pdf/1805.08959.pdf>
- [2] ASOK, ARAVIND; ØSTVÆR, PAUL ARNE , *A1-homotopy theory and contractible varieties: a survey*, Preprint available at <https://arxiv.org/pdf/1903.07851.pdf>