

***R*-equivalence and $\mathbb{A}^1$ -homotopies**

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The notion of *R*-equivalence, introduced by Manin in the 1970's, has been very useful in the study of rationality properties of algebraic groups. We will begin with a brief introduction to *R*-equivalence and state some open questions. Classical results about *R*-equivalence and recent works in $\mathbb{A}^1$ -homotopy theory allow one to relate *R*-equivalence with $\mathbb{A}^1$ -connectivity in algebraic groups. We will discuss some recent results in this direction, without going into technical details.