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*Essential dimension for moduli stacks*

Essential dimension is a notion invented by Zinovy Reichstein and Joe Buhler to study the complexity of field extensions and, more generally, principal  $G$  bundles over a field. More generally, it can be thought of as a measure of the complexity of algebraic objects defined over a field. Zinovy Reichstein, Angelo Vistoli and I developed techniques for studying the essential dimension of algebraic objects parametrized by stacks. For example, we can compute the essential dimension of the moduli stack of genus  $g$  curves. Roughly speaking this determines how many parameters it takes to define such a curve over a field.

I will discuss my work with Reichstein and Vistoli and the concept of essential dimension in general.