

# Hilbert schemes and the Le Bruyn-Procesi theorem

*Monday, 18 December 2023 15:30 (50 minutes)*

For a positive integer  $n$  and a finite subgroup  $\Gamma$  in  $SL(2, \mathbb{C})$ , I'll describe work in preparation with Ryo Yamagishi which shows that the Hilbert scheme of  $n$ -points on  $\mathbb{C}^2/\Gamma$  is reduced. In fact, it's isomorphic to a Nakajima quiver variety, so it has symplectic singularities and it admits a unique crepant resolution. This strengthens previous joint work of mine with Gammelgaard, Gyenge and Szendroi. The main tool is a generalisation of the Le Bruyn-Procesi theorem which describes the invariant algebra for the natural action of the product of general linear groups on the space of representations of a quiver for a given dimension vector.

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