

On motivic cohomological stability for configuration spaces

Martin Palmer-Anghel // Talk at the [e-GeMAT](#) seminar, [IMAR](#), 10 April 2020

Abstract.

Unordered configuration spaces $C_n(M)$ on connected, non-compact topological manifolds M are known to be (co)homologically stable, by results of McDuff and Segal in the 1970s. If X is a smooth algebraic variety (or scheme) over a subring $k \subseteq \mathbb{C}$, one could ask whether the corresponding unordered configuration varieties $C_n(X)$ exhibit stability in their étale or motivic cohomology, lifting the classical stability for the singular (co)homology of the complex manifolds $C_n(X_{\mathbb{C}})$.

We will answer this question in three steps:

- defining an analogue of the classical *stabilisation maps* for $C_n(X)$ in the category of motives,
- proving stability for the étale cohomology of $C_n(X)$,
- in the case where $X = \mathbb{A}^d$, proving stability also for the motivic cohomology of $C_n(\mathbb{A}^d)$.

This represents joint work with [Geoffroy Horel](#).