

ALGEBRA AND NUMBER THEORY
SEMINAR

*On the stable birationality of Hilbert schemes of points on
surfaces*

Morena Porzio
Columbia University

Abstract: The Cassels–Swinnerton-Dyer conjecture says that cubic surfaces of index 1 have a rational point. This can be reformulated into a statement about the existence of rational maps between Hilbert schemes of points Hilb_X^n , which in turn motivates the study of the stable birational type of Hilb_X^n . In this talk, we will address the question for which pairs of integers (n, n') the variety Hilb_X^n is stably birational to $\text{Hilb}_X^{n'}$, when X is a surface with $H^1(X, \mathcal{O}_X) = 0$. In order to do so we will relate the existence of degree n' effective cycles on X with the existence of degree n ones using curves on X . We will then focus on geometrically rational surfaces, proving that there are finitely many birational classes among Hilb_X^n 's.

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