

Finiteness of K3 surfaces and the Tate conjecture

Max Lieblich, Daveshe Maulik, Andrew Snowden

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Given a finite field k of characteristic at least 5, we show that the Tate conjecture holds for K3 surfaces defined over the algebraic closure of k if and only if there are only finitely many K3 surfaces over each finite extension of k .

Comments: 20 pages, major clarifications and corrections to earlier versions. Comments still welcome anytime

Subjects: **Algebraic Geometry (math.AG)**; Number Theory (math.NT)

MSC classes: 14G15, 14G10, 14J28

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