

DISTRIBUTION OF TRACES OF GENUS 3 CURVES

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We present numerical experiments to visualize the asymmetry in the distribution of traces of Frobenius of genus 3 curves over finite fields. These observations are linked to the so-called Serre obstruction for non hyperelliptic curves. We also give a heuristic explanation for the phenomena we observe.

Joint work with Reynald Lercier (university Rennes 1), Florent Rovetta (university Aix-Marseille), Jeroen Sijssling (Dartmouth college) and Ben Smith (Polytechnique Paris).