

ABSTRACT. We prove that the fibered power conjecture of Caporaso et al. (Conjecture H, [CHM, §6] together with Lang's conjecture implies the uniformity of rational points on varieties of general type, as predicted in [CHM]; a few applications on the arithmetic and geometry of curves are stated.

In an opposite direction, we give counterexamples to some analogous results in positive characteristic. We show that curves that change genus can have arbitrarily many rational points; and that curves over $\overline{\mathbb{F}}_p(t)$ can have arbitrarily many Frobenius orbits of non-constant points.