Ann. Sc. Norm. Super. Pisa Cl. Sci. (5)
Vol. XIV (2015), 965-981

Heights of points with bounded ramification

LUKAS POTTMEYER

Abstract. Let E be an elliptic curve defined over a number field K with fixed non-archimedean absolute value v of split-multiplicative reduction, and let f be an associated Lattès map. Baker proved in [3] that the Néron-Tate height on E is either zero or bounded from below by a positive constant, for all points of bounded ramification over v. In this paper we make this bound effective and prove an analogue result for the canonical height associated to f. We also study variations of this result by changing the reduction type of E at v. This will lead to examples of fields F such that the Néron-Tate height on non-torsion points in $E(F)$ is bounded from below by a positive constant and the height associated to f gets arbitrarily small on F.

Mathematics Subject Classification (2010): 11G50 (primary); 37P30, 14H52 (secondary).