Séminaire de théorie des nombres

Le 08 octobre 2018 à 14h (Jussieu)

Diophantine properties of harmonic arithmetic varieties

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Résumé : We focus on a datum of a projective variety X over a global field K and an ample and semipositive adelically metrized line bundle L, such that all of Zhang's successive minima are equal (to 0, without loss of generality). In other words : the associated height function on the $\overline{K}$-points of X is assumed to be non-negative and also to realize the infimum 0 as a limit value under some Zariski-generic sequence. Since the basic example is given by Rumely's capacitary height functions on the projective line, where the Chern form of $L = O(1)$ is the harmonic measure on a compact planar set, we propose to call such a datum a "harmonic arithmetic variety."

We shall start by outlining a proof that the set of harmonic subvarieties of X is stable under taking an intersection. For reasons that shall be explained, this result can be considered as an abstract generalization of the Bogomolov conjecture, in whose background there is no algebraic group or dynamical system present. We shall conclude by stating some further results, problems and conjectures concerning harmonic arithmetic varieties and the distribution of their algebraic points with respect to the natural height function.