Big Line Bundles

Xinyi Yuan

Abstract:

In arithmetic intersection theory, each line bundle is endowed with a Hermitian metric. One line bundle can have different metrics. Following Szpiro-Ullmo-Zhang, with certain positivity result, variation of the metrics gives equidistribution of small points in algebraic varieties defined over number fields. By this way they showed, for example, equidistribution over abelian varieties. And this result finally implied Bogomolov conjecture in work of Ullmo and Zhang.

In this talk, I will present an arithmetic bigness result, namely, for two ample line bundles $\mathcal{L}$ and $\mathcal{M}$ over an arithmetic variety of dimension n, the tensor quotient $\mathcal{L} - \mathcal{M}$ is big if the intersection numbers satisfy $\mathcal{L}^n > \mathcal{L}^{n-1}\mathcal{M}$. This result gives equidistribution of small points over algebraic dynamical systems.