

Speaker: Jihun Yum

Title: Limit of Bergman kernels on a tower of coverings of compact Kähler manifolds

Abstract:

The Bergman kernel B_X , which is by the definition the reproducing kernel of the space of L^2 holomorphic n -forms on a n -dimensional complex manifold X , is one of the important objects in complex geometry. In this talk, we observe the asymptotics of the Bergman kernels, as well as the Bergman metric, on a tower of coverings. More precisely, we show that, for a tower of finite Galois coverings $\{\phi_j : X_j \rightarrow X\}$ of compact Kähler manifold X converging to an infinite Galois covering $\phi : \tilde{X} \rightarrow X$, the sequence of push-forward Bergman kernels $\phi_{j*}B_{X_j}$ locally uniformly converges to $\phi_*B_{\tilde{X}}$. Also, as an application, we show that sections of canonical line bundle K_{X_j} for sufficiently large j give rise to an immersion into some projective space, if so do sections of $K_{\tilde{X}}$. This is a joint work with S. Yoo in IBS-CCG.

References

- [1] H. Baik, F. Shokrieh and C. Wu, *Limits of canonical forms on towers of Riemann surfaces*, J. Reine Angew. Math. (Crelle's Journal) (2020)
- [2] S. Yoo and J. Yum, *Limit of Bergman kernels on a tower of coverings of compact Kähler manifolds*, arXiv:2202.01638 (2022)