# HSIAO, Chin-Yu (Taipei)


## Title:

"Semi-classical analysis in complex geometry:
Bergman kernel asymptotics for lower energy forms"

## Abstract:


In my work with Marinescu at 2012, we give a semi-classical study of the complex Witten Laplacian. As an application, we obtain a full asymptotic expansion of the spectral function corresponding to the lower part of the spectrum of the Kodaira Laplacian on high tensor powers of a holomorphic line bundle. From this result, we could deduce many classical results in complex geometry (eg Kodaira embedding and vanishing Theorems, Demailly's Morse inequalities, Bergman kernel asymptotics for ample line bundles...).
In this talk, I will explain how to obtain these classical results from this result.