Abstract

The $m$-genus of a compact complex manifold is the complex dimension of the vector space of all holomorphic sections of the $m$-th tensor power of its canonical line bundle. The deformational invariance of the $m$-genus for any positive $m$ is known to hold for compact complex algebraic manifolds. When $m$ is 1, such a deformational invariance for all compact Kähler manifolds is just a direct consequence of the Hodge decomposition. The question naturally arises whether the deformational invariance of $m$-genus for $m$ greater than 1 can also be understood in the context of some form of Hodge decomposition with the vector space of all holomorphic $m$-canonical sections as a summand. We discuss the results and the developments in the study of this problem by starting with the simplest case of compact Riemann surfaces.

Colloquium Lecture:  July 10, 2014  (Thursday)  4:00 – 5:00pm
Lecture 2:  July 17, 2014  (Thursday)  3:00 – 4:30pm
Lecture 3:  July 25, 2014  (Friday)  10:30am – 12:00noon

Room 210, Run Run Shaw Bldg., HKU