4th Beijing Algebraic Geometry Colloquium

5th March 2016, N913, AMSS

9:00—10:00   Kang ZUO (Mainz University)

Periodic Higgs bundle in postive and mixed characteristic

Abstract: I shall first explain briefly the notion "Higgs-de Rham flow" on a smooth quasiprojective scheme   X /W(k)   and   the induced p-adic   correspondence between   the category of crystalline representations of   the   etale fundamental group of the generic fibre of X and the category of periodic Higgs bundles on X. As an application we construct an absolute irreducible rank-2   crystallien representation of   the etale fundamental group   of a so-called   canonical lifted hyperbolic curve   via   the uniformization Higgs bundle, which should be regarded as a p-adic analogue of Hitchin-Simpson's uniformization theorem on complex hyperbolic curves via uniformization Higgs bundles. This talk is based on my joint papers with Lan, Sheng and Yang.

10:15—11:15   Hui-Wen LIN (National Taiwan University)

Quantum cohomology under smooth blow-ups along complete intersection centers

Abstract: I would like to consider the Dubrovin (flat) connection on TH(X) and analyze its behavior under various maps including complete intersection imbedding and projective bundle maps. The essential mathematical tools are the corresponding Quantum Lefschetz Hyperplane Theorem and the Quantum Leray--Hirsch Theorem. By combining these two theorems, I can discuss an application on smooth blow-ups along complete intersection centers and succeed in determining a blow-up formula of quantum cohomology.

11:30—12:30   Chin-Lung WANG (Natioal Taiwan University)

Simple flips and quantum cohomology

Abstract: I will present a recent joint work with Yuan-Pin Lee and Hui-Wen Lin on on quantum cohomology rings under simple ordinary flips. There is a natural decomposition of quantum rings which refines the decomposition of motives. In contrast to the case of flops, where analytic continuation exists, the new phenomenon appeared here is the irregularity of the Dubrovin connections along the kernel factor under flips.

Organized by: Baohua FU, Wenfei LIU, Xiaotao SUN, Chenyang XU