Professor Yujiro Kawamata  
University of Tokyo  

On non-commutative deformations  

2:30 – 3:30pm  

I will consider deformations of coherent sheaves on algebraic varieties. It is sometimes more natural to consider deformations over non-commutative base when I consider formal deformations or the formal completion of the moduli space. I will talk about examples and applications to perverse coherent sheaves and semi-orthogonal decompositions.

Professor Mao Sheng  
University of Science and Technology of China  

Decomposition theorem for intersection de Rham complexes  

4:00 – 5:00pm  

Deligne-Illusie gives an algebraic proof of $E_1$ degeneration of the Hodge to de Rham spectral sequence in characteristic zero, first proved via the theory of harmonic forms in differential geometry. The basic device is the decomposition theorem for de Rham complex in positive characteristic. One major achievement in the nonabelian Hodge theory in positive characteristic, established by Ogus-Vologodsky, is the generalization of decomposition theorem to general coefficients. In this talk, I will report our further generalization of decomposition theorem for intersection de Rham complexes, aiming at an algebraic proof of $E_1$-degeneration theorem of the spectral sequence associated to the holomorphic intersection de Rham complex coming from a semistable family over $\mathbb{C}$, proved by Zucker in the curve case, Cattani-Schmid-Kaplan and Kashiwara-Kawai in general by $L^2$-harmonic forms and $SL_2$-orbit theorem. This is a joint work with Zhang Zebao.