



*Institute of Mathematical Research
Department of Mathematics*

GEOMETRY SEMINAR

Perverse coherent sheaves on blow-ups

Mr. Wanmin Liu

The Hong Kong University of Science & Technology

Abstract

Bridgeland initiates the notion of moduli space of perverse coherent sheaves in the paper “Flops and derived categories”. Nakajima and Yoshioka specify them on the blow-up setting: $p:Y := \text{Blow}_o(X) \rightarrow X$ be the blow-up of surface X at a point o . The perverse heart $\text{Per}(Y/X)$ (as a heart in $D(Y) := D(\text{Coh}(Y))$) is obtained by the gluing of the $p^*\text{Coh}(X)$ and another subcategory C of $\text{Coh}(Y)$. In general, a perverse sheaf is represented by a two-term complex of sheaves in $D(Y)$, while imposed on the NY stability conditions (in the sense of GIT), it must be a sheaf. In this talk, we will study (1) the basic properties of $\text{Per}(Y/X)$; (2) the NY stability conditions and (3) the wall-crossing behavior of the moduli space of stable perverse sheaves which links Y and X . We will mainly follow the NY’s paper arXiv:0806.0463.

Date: November 3, 2014 (Monday)

Time: 4:00 – 5:00pm

Place: Room 210, Run Run Shaw Bldg., HKU

All are welcome