

# SCMS Seminar



## **\'ETALE DUALITY FOR P-TORSION SHEAVES ON SEMISTABLE SCHEMES**

**Speaker: Dr. Yigeng Zhao**  
**University of Regensburg**

**Time:** 2:00 p.m.-3:00 p.m., Wednesday, Sept 14, 2016

**Venue:** Room 2201, East Guanghua Tower (Main), Fudan University

**Abstract:** In this talk, we will introduce the relative logarithmic de Rham-Witt sheaves on a semistable scheme  $X$  over a local ring of positive characteristic  $p$ , and study duality theorems. As an application, we will define a filtration on the abelianized \'etale fundamental group of open complement of a simple normal crossing divisor on  $X$ . In a special case, this filtration coincides with higher ramification groups in local class field theory.

$$b_i = \frac{\sum_{j=1}^{i-1} a_{ij} x_j^{(k)} + \sum_{j=i+1}^n a_{ij} x_j^{(k)}}{\sum_{j=1}^{i-1} a_{ij} x_j^{(k)} + \sum_{j=i+1}^n a_{ij} x_j^{(k)}}$$
$$\Delta y_i = \int_{x_i}^{x_{i+1}} \frac{y' dx}{y^{a_{ii}} - (\sum_{j=1}^{i-1} a_{ij} x_j^{(k)} + \sum_{j=i+1}^n a_{ij} x_j^{(k)})}$$
$$\int_{x_k}^{x_{k+1}} f(x, y) dx = \int_{x_k}^{x_{k+1}} y' dx = y(x)$$
$$-\sqrt{(y_n + 0.5\tau k_1)^2 + (t_n + 0.5\tau)^2}$$