

Shunsuke Takagi: **Frobenius action on local cohomology and the Hodge filtration**

M. Mustata and V. Srinivas recently introduced the so-called weak ordinarity conjecture, which states that if X is an n -dimensional smooth projective variety over a field of characteristic zero, then there exists a dense set of reductions X_p to positive characteristic such that the action of Frobenius on $H^n(X_p, \mathcal{O}_{X_p})$ is bijective. In this talk, I will discuss the relationship of this conjecture and F -singularities. In particular, I will show that a variant of the weak ordinarity conjecture gives a Hodge theoretic interpretation of F -nilpotent isolated singularities. This leads to a characterization of low-dimensional F -nilpotent isolated singularities in terms of divisor class groups and Brauer groups. This talk is based on joint work with B. Bhatt, K. Schwede and with V. Srinivas.