

1096-44-2038

Zsolt Patakfalvi* (pzs@princeton.edu) and **Karl Schwede**. *Depth of modules at non sharply F -pure centers and base-change for the relative canonical sheaf.*

I will present a depth inequality for sharply F -pure pairs at non sharply F -pure centers. A special case is: if (X, D) is a sharply F -pure pair and x is a point of X that is not a sharply F -pure center, then for any n such that nD is integral, the divisorial sheaf $\mathcal{O}_X(-nD)$ has depth at least as big as the minimum of the codimension of x in X and 3 (i.e. it satisfies the requirements for S_3 at x). I will also explain how this condition guarantees that the relative canonical sheaf is compatible with base-change in flat families of sharply F -pure varieties, an important consequence for the construction of moduli spaces of higher dimensional varieties in positive characteristics. (Received September 17, 2013)