

Title: *Hilbert-Kunz multiplicity and Hilbert-Kunz slope*

Abstract: In this talk we recall the notion of characteristic p invariants of a ring (commutative and Noetherian), namely *Hilbert-Kunz function* and *Hilbert-Kunz multiplicity*, introduced by P. Monsky in 1980's.

Here we concentrate on HK multiplicity, which is a more subtle invariant of a ring (compare to classical multiplicity): It is related to characteristic p features of the singularities of the ring. Here we will give an overview of results and some known computations of the HK multiplicity.

In higher dimension one proves that, though Frobenius semistability does not behave well reduction mod p , an invariant associated to the Frobenius instability degree of a bundle V , namely $(\mu_{HK}(V) - a_{HK}(V)) \mapsto 0$, as $p \mapsto \infty$.