

Meeting: 999, Nashville, Tennessee, SS 6A, Special Session on Local and Homological Algebra

999-13-160

Kazuma Shimomoto* (shimomot@math.utah.edu), University of Utah, Department of mathematics, 155 S. 1400 E. Rm 233, Salt Lake City, UT 84112, and **Florian Enescu**, Georgia State University. *On the upper semi-continuity of Hilbert-Kunz multiplicity.*

I will talk about my joint work with F.Enescu on the minimality of Hilbert-Kunz multiplicity. This multiplicity was introduced by E.Kunz in his attempt to the question of resolution of singularities in positive characteristic, and a thorough study was initiated by P.Monsky. This multiplicity is quite a refined invariant for rings of positive characteristic and has a lot of amazing properties. A few years ago, K.Watanabe and K.Yoshida posed the following question:

If the local ring is not regular, what kind of local ring will give the smallest value of the Hilbert-Kunz multiplicity ? They gave a positive answer to this question up to dimension 4. In this talk, I will discuss the upper semi-continuity of the multiplicity on the family of singularities and will show that this property will give a positive answer to the above question in the case of complete intersections and in any dimension. (Received August 20, 2004)