

1124-13-402

**Neil Epstein\*** (nepstei2@gmu.edu), Fairfax, VA , and **Yongwei Yao**, Atlanta, GA. *Unmixed Hilbert-Kunz multiplicity.*

After providing foundations for Hilbert-Kunz theory of a non-embedded pair of modules (originally introduced without a name by Seibert), we introduce the Hilbert-Kunz multiplicity of a non-embedded *triple* of modules with finite length tensor product. The latter specializes to what we call the *unmixed Hilbert-Kunz multiplicity* of an arbitrary ideal, which coincides with ordinary Hilbert-Kunz multiplicity if the ideal has finite colength. We derive some key properties, including a criterion for a nested pair of ideals to have the same ‘unmixed tight closure’. The definition for the triple leads to a double limit that we show is interchangeable because it exists in a uniform way.

Note that these generalizations of Hilbert-Kunz multiplicity do *not* coincide with any of those from the authors’ recent article “Some generalizations of Hilbert-Kunz multiplicity”, including the one that led to Brenner’s counterexample to rationality of Hilbert-Kunz multiplicity. (Received September 13, 2016)