1158-16-272 **Andrew B. Conner*** (abc12@stmarys-ca.edu) and **Peter D. Goetz**. *Noncommutative Projective Geometry of Certain Twisted Tensor Products.* Preliminary report.

Let $T = k\langle x_0, \ldots, x_n\rangle$ denote the free associative k-algebra on generators of degree 1. Let $A = T/I$ be the quotient by a finitely-generated, homogeneous ideal I. For $d \geq 1$, let $Z_d \subset (\mathbb{P}^n)^{\times d}$ be the scheme of common zeros of elements of I_d, viewed as functions $(T_1^*)^{\otimes d} \to k$. From the geometric data of the schemes Z_d, one can define a ring structure on $B = \bigoplus_d H^0(Z_d, i^*\mathcal{O}_{(\mathbb{P}^n)^{\times d}}(1))$ where $i : Z_d \to (\mathbb{P}^n)^{\times d}$ is the inclusion.

If A is an Artin-Schelter (AS) regular algebra on three generators, then $Z_d \cong Z_2$ for all $d \geq 2$, and Z_2 is the is the graph of an automorphism σ on a scheme X. In this case, B is isomorphic to a twisted homogeneous coordinate ring on the data $(X, \sigma, \mathcal{L})$ where $\mathcal{L}$ is an invertible sheaf. If A is not AS-regular, the sequence $\{Z_d\}$ need not stabilize.

In this talk we describe the schemes Z_d and the associated ring structure of B in the case where A is a quadratic twisted tensor product of $k[x, y]$ and $k[z]$. Such twisted tensor products were recently classified by the authors, and the classification includes both AS-regular and non-noetherian examples. (Received March 02, 2020)