1158-16-243 **Peter Goetz*** (peter.goetz@humboldt.edu). *1-generation of section rings associated to certain inverse systems of projective schemes.* Preliminary report.

In seminal work Artin, Tate and Van den Bergh introduced the following fundamental construction. Let $\mathbb{K}$ be a field. Suppose that $\{Z_d \subset (\mathbb{P}^n)^{\times d}\}_{d\geq 1}$ is a family of closed subschemes such that

$$\pi_{1,d-1}(Z_d) \subset Z_{d-1} \quad \text{and} \quad \pi_{2,d}(Z_d) \subset Z_{d-1} \quad \text{for all } d,$$

where the $\pi_{i,j}$ are the obvious projection maps. Let $\mathcal{L}_d$ be the restriction of the invertible sheaf $\mathcal{O}(1,1\ldots,1)$ on $(\mathbb{P}^n)^{\times d}$ to Z_d. Define $B_0 = \mathbb{K}$ and $B_d = H^0(Z_d, \mathcal{L}_d)$ for $d \geq 1$. Then one can define a canonical multiplication map $B_i \otimes B_j \to B_{i+j}$ so that $B = \oplus B_d$ becomes a connected $\mathbb{N}$-graded $\mathbb{K}$-algebra.

We call B the *section ring associated to the family* $\{Z_d\}$. In this talk I will discuss a new theorem that gives several conditions that ensure that B is generated as a $\mathbb{K}$-algebra by B_1. If Z_d is the scheme of truncated point modules of length $d+1$ associated to an Artin-Schelter regular algebra of dimension 3, then B is isomorphic to a twisted homogeneous coordinate ring and we recover the theorem that B is 1-generated. (Received March 02, 2020)