SPEAKER: Joe Silverman (Brown University)

TITLE: Specialization Theorems and Unlikely Intersections

ABSTRACT:

Number Theory Seminar: (5:30-7:00) : Let T be a curve and let $A \to T$ be a family of abelian varieties, all defined over a number field K. An old result says that, subject to an appropriate non-degeneracy condition, there are only finitely many t in $T(K)$ for which the specialization map $A(T) \to A_t(K)$ fails to be injective, and, more generally, the set of all such t is a set of bounded height. Bombieri, Masser, and Zannier subsequently proved an analogous result when A is replaced by a product of multiplicative groups. I will survey these theorems and then discuss what is known and what is conjectured when the base T is taken to have dimension greater than one.

RTG Seminar: (4:00-4:45) : In this talk I will concentrate on the multiplicative group case. Thus, let $f_1(x)$, $\ldots$, $f_r(x)$ be multiplicatively independent rational functions of one (or more) variables. We are interested in describing the set of rational numbers (points) such that $f_1(t)$, $\ldots$, $f_r(t)$ become multiplicatively dependent. The talk will include an introduction (review) of the theory of height functions, which play an important role in the subject.