Algebra and Number Theory Seminar

Tensor products of division algebras

David J. Saltman
CCR Princeton

Abstract: If F is algebraically closed, and $F_i \supset F$ are field extensions, then $F_1 \otimes_F F_2$ is always a domain. It thus makes sense to conjecture that if D_i/F_i are division algebras (meaning F_i is the center of D_i and D_i/F_i is finite dimensional), then $D_1 \otimes_F D_2$ is a (noncommutative) domain. We will show that this is often true, but not always. We will concentrate on the case that F has characteristic 0 and that the D_i/F_i have prime degree. We also hope to draw attention to the interesting properties of $F_1 \otimes_F F_2$ and how they relate to our problem. Along the way we will make use of Picard varieties and elliptic curves.

Tuesday, October 25, 2011, 4:00 pm
Mathematics and Science Center: E406

Mathematics and Computer Science
Emory University