

David Saltman

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will speak on

Division Algebras over Surfaces

ABSTRACT:

The isomorphism classes of (finite dimensional) division algebras with fixed center F form the so called Brauer group of F . The study of these algebras and this group has a long history with some wonderful results. There is a sense, however, that up to now the methods have often concentrated on fields that were “one-dimensional” like global fields, or iterated constructions based on one dimensional fields. Thus it is natural that several mathematicians have been considering division algebras D/F with centers F that are function fields of “surfaces” broadly interpreted. There is now a collection of results that might be the beginning of a theory. Notable among these are Brussel’s noncrossed products over $\mathbb{Q}(t)$, DeJong’s result on index/exponent over complex surfaces, and results on D/F where $F = K(C)$ for a curve C over the p -adic field K . Part of the results speak to the “good” properties of these division algebras, but perhaps the biggest question is whether these fields are general enough to afford counter examples to very old questions, like whether prime degree division algebras are cyclic. Or perhaps for these fields they are all cyclic? The methods that have been employed are a pleasant combination of algebra, concrete geometry, etale cohomology, stacks...

MONDAY, 5 NOVEMBER 2007

LECTURE AT 4:00 PM

COFFEE, TEA, AND REFRESHMENTS FROM 3-5 PM

ROOM 617, WACHMAN BUILDING
DEPARTMENT OF MATHEMATICS