Department of Mathematics and Statistics

Colloquium Announcement

Monday, May 12 2014 University of Saskatchewan	ARTS Building Room102 3:30 PM

Lost in Translation: The function-sheaf dictionary for smooth commutative group schemes over finite fields

Guest Speaker: **Prof. Clifton Cunningham**

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Abstract:

Deligne's function-sheaf dictionary translates characters of connected, commutative algebraic groups G over finite fields Fq into certain local systems on G, from which the character of G(Fq) can be recovered using the action of Frobenius on G. Since the local systems which appear in this dictionary — often referred to as character sheaves on G — are easily characterised, the result is a perfect dictionary between characters of G(Fq) and character sheaves on G.

In joint work with David Roe, we have found that while this dictionary does extend to the case when G is not connected, and even to all smooth commutative group schemes over Fq, the result is not perfect, generally. In this talk I will discuss the correct generalization of character sheaves from connected commutative algebraic groups over Fq to smooth commutative group schemes over Fq and then describe exactly which of these sheaves are lost in translation under the function-sheaf dictionary.