

# Philadelphia Area Number Theory Seminar

**Sebastian Moore**

The University of Pennsylvania

## Galois Module Structure of Lubin-Tate Modules

**Abstract:** Consider a finite, unramified extension  $E$  of the  $p$ -adic numbers  $\mathbb{Q}_p$  with  $p$  odd, and let  $F_n$  be the field obtained by adjoining a primitive  $p^n$ -th root of unity to  $E$ . Sharifi has produced explicit generators and relations for the multiplicative group of  $F_n$  as a module over the  $\mathbb{Z}_p$ -group ring of  $\text{Gal}(F_n/\mathbb{Q}_p)$ . Furthermore, he gives generators for the submodules in the principal unit filtration; these may be used to compute conductors of abelian extensions of  $F_n$ . I will outline Sharifi's method and discuss progress toward generalizing to other formal groups besides the multiplicative group. When the formal group comes from an elliptic curve with complex multiplication, this has relevance to the class field theory of the  $p$ -adic completion of imaginary quadratic fields.

Thursday, October 22, 2015

2:40–4:00PM

Bryn Mawr College

Department of Mathematics

Park Science Center **328**

Tea and refreshments at 2:20PM in Park 355