

# Philadelphia Area Number Theory Seminar

Frauke Bleher  
University of Iowa

## Massey products and elliptic curves

**Abstract:** This is joint work with T. Chinburg and J. Minac. In 2014, Minac and Tan showed that triple Massey products vanish for the absolute Galois group of any field  $F$ . In 2019, Harpa and Wittenberg showed that this remains true for all higher Massey products in this case when  $F$  is a number field. The first natural case to consider beyond fields is triple Massey products for curves over fields. I will discuss some known and new vanishing and non-vanishing results in this case. In particular, for elliptic curves I will present a classification for the non-vanishing of triple Massey products under various natural assumptions. The main tool is the representation theory of étale fundamental groups, which is broken into upper triangular unipotent matrix groups. I will begin with background on Massey products, which first arose in topology, and about the relevant representation theory, before discussing our results.

Wednesday, March 29, 2023

2:00{4:00 PM

Temple University  
Tuttleman Hall, Room 1A

Informal refreshments at 2:00PM { Talk at 2:30PM