

# Philadelphia Area Number Theory Seminar

**Jonathan Hanke**

## The 290-Theorem and Representing Numbers by Quadratic Forms

**Abstract:** This talk will describe several finiteness theorems for quadratic forms, and progress on the question: “Which positive definite integer-valued quadratic forms represent all positive integers?”. The answer to this question depends on settling the related question “Which integers are represented by a given quadratic form?” for finitely many forms. The answer to this question can involve both arithmetic and analytic techniques, though only recently with the use of computers has the analytic approach become practical.

We will describe the theory of quadratic forms as it relates to answering these questions, its connections with the theory of modular forms, and give an idea of how one can obtain explicit bounds to describe which numbers are represented by a given quadratic form.

Wednesday, December 10, 2014  
2:40–4:00PM

Bryn Mawr College  
Department of Mathematics  
Park Science Center **328**

Tea and refreshments at 2:20PM in Park 355