

# Philadelphia Area Number Theory Seminar

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## Laplace's Method for Sums Over Lattices

**Abstract:** Laplace's method is an umbrella term for techniques used to approximate integrals and summations involving functions of the form  $e^{Mf(x)}$  where  $M$  is a large number and  $f$  is a twice-differentiable function. In this talk, I present a version of Laplace's method for sums over lattice points due to Greenhill, Janson, and Rucinski. As an example of this technique at work, I will then introduce the concept of  $n^{\text{th}}$  order words of set by a fixed vector  $\alpha \in \mathbb{Z}^d$  and derive an asymptotic estimate of the number of such words as  $n \rightarrow \infty$ .

Wednesday, November 16, 2016  
3:10{4:30PM

Bryn Mawr College  
Department of Mathematics  
Park Science Center 328

Tea and refreshments at 2:50PM in Park 355