

# Student Research Talks (StReeTs)

Mason Experimental Geometry Lab (MEGL)

## Binomial Coefficients in Congruence Equations

**Tyler Russ**

Department of Mathematics Sciences  
George Mason University

### Abstract

We will look at a number theoretic conjecture that originates when trying to construct a characterizable generating set for the complex cobordism polynomial ring. To date there is no efficient, universal method for characterizing such a generating set. Andrew Wilfong conjectures that smooth projective toric varieties can act as these generators. Toric varieties are related to polytopes by a bijective correspondence. The combinatorial structure of these polytopes gives rise to the number theoretic conjecture considered here. A full proof has not yet been given. We will look at some extensions of unpublished work done by Andrew Wilfong and Walter Parry. The talk will focus mainly on binomial coefficients in congruences modulo a prime  $p$  and basic number theory.

Date: Friday, February 12, 2016

Time: 2:30pm–3:30pm

Place: Exploratory Hall 4106

**Pizza and soda will be served at the presentation.**

For further information or for special accommodations, please contact Sean Lawton via email at [seanlawton@gmail.com](mailto:seanlawton@gmail.com) or drop by the MEGL.