The Algebra Seminar

Unless stated otherwise, the seminar meets Tuesdays in room WH-100E at 2:50 p.m. There will be refreshments served at 4:00 in room WH-102.

Organizers: Alex Feingold and Hung Tong-Viet

To receive announcements of seminar talks by email, please join the seminar's mailing list.

Spring 2020

- **January 21**
  No Algebra Seminar Meeting

  Please think about giving a talk in the Algebra Seminar, or inviting an outside speaker.

- **January 28**
  Organizational Meeting

- **February 4**
  Casey Donoven (Binghamton University)
  Thompson's Group V is 3/2-Generated

  Abstract: Every finite simple group can be generated by two elements and furthermore, every nontrivial element is contained in a generating pair. Groups with this property are said to be 3/2-generated. Thompson’s group V, a finitely presented infinite simple group, is one of a small number of examples of infinite noncyclic 3/2-generated groups. I will present a constructive proof of this fact and mention extensions of this theorem to generalizations of V.

- **February 11**
  Cancelled

- **February 18**
  Eran Crockett (Binghamton University)
  Universal algebra and constraint satisfaction problems

  Abstract: Constraint satisfaction problems (CSPs) form a class of combinatorial decision problems generalizing

graph colorability and Boolean satisfiability. In this expository talk, I will explain how ideas from universal algebra have been instrumental in classifying the computational complexity of CSPs.

- **February 25**
  Fikreab Solomon Admasu (Binghamton University)
  Subgroups of the integer lattice $\mathbb{Z}^d$ and the higher rank discrete Heisenberg groups

  Abstract: A sublattice L of the integer lattice $\mathbb{Z}^d$ is called co-cyclic when the quotient $\mathbb{Z}^d/L$ is a cyclic group. Approximately 85% of sublattices of finite index in $\mathbb{Z}^d$ are co-cyclic. This can be proven by either counting solutions to linear congruence equations or using zeta function methods. We show a similar result holds for subgroups of the discrete Heisenberg groups $H_{2d+1}.$

- **March 3**
  Matt Evans (Binghamton University)
  Some recent results for spectra of commutative BCK-algebras

  Abstract: BCK-algebras are the algebraic semantics of a non-classical logic. Like for commutative rings, there is a notion of a prime ideal in these algebras, and the set of prime ideals is a topological space called the spectrum. By work of Stone (and later, Priestley), there is a close connection between these spectra and distributive lattices with 0. In this talk I will discuss some recent results on the interplay between commutative BCK-algebras, their spectra, and distributive lattices.

- **March 10**
  Aparna Upadhyay (University at Buffalo)
  The Benson-Symonds Invariant

  Abstract: Let M be a finite dimensional kG-module for a finite group G over a field k of characteristic p. In a recent paper Dave Benson and Peter Symonds defined a new invariant $\gamma_G(M).$ This invariant measures the non-projective proportion of the module M. In this talk, we will see some interesting properties of this invariant. We will then determine this invariant for permutation modules of the symmetric group corresponding to two-part partitions and present a combinatorial formula for the same using tools from representation theory and combinatorics.

- **March 17**
  Cancelled

- **March 24**
  Cancelled

- **March 31**
  Cancelled

- **April 7**
  Spring vacation

- **April 14**
  Cancelled

- **April 21**

Cancelled

- **April 28**
  Cancelled

- **May 5**
  Cancelled

- Pre-2014 semesters
- Fall 2014
- Spring 2015
- Fall 2015
- Spring 2016
- Fall 2016
- Spring 2017
- Fall 2017
- Spring 2018
- Fall 2018
- Spring 2019
- Fall 2019