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# Fall 2016

### - August 30

Organizational Meeting

### September 6

No talk this week (see the Geometry/Topology seminar on September 8 here.)

## September 13

Eran Crockett (Binghamton University)

Properties of finite algebras

**Abstract**: We study various properties of finite algebras and the varieties they generate. In particular, we look for counterexamples to the conjecture that every dualizable algebra is finitely based.

September 20

Name (University)

Title of Talk

Abstract: Abstract for Talk

September 27

Name (University)

Title of Talk

Abstract: Abstract for Talk

October 4

Holiday

Title of Talk

Abstract: Abstract for Talk

October 11

Name (University)

Title of Talk

Abstract: Abstract for Talk

October 18

Luise C. Kappe

On auto commutators in infinite abelian groups

Abstract: Abstract for Talk

October 25

Matt Evans (Binghamton University)

An introduction to BCK-algebras

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**Abstract**: In this talk I will introduce BCK-algebras and discuss some of their universal algebraic properties. In the bounded commutative case, I will develop the beginnings of a Priestley duality for BCK-algebras and discuss some complications.

#### November 1

Rachel Skipper (Binghamton University)

On some groups generated by finite automata

**Abstract**: Every invertible automaton with finitely many states produces a group of automorphisms of a regular rooted tree. In this talk, we outline how to obtain a group from an automaton and then discuss a particular family of examples.

### November 7

Matthew Moore (McMaster University)

Dualizable algebras omitting types 1 and 5 have a cube term

**Abstract**: An early result in the theory of Natural Dualities is that an algebra with a near unanimity (NU) term is dualizable. A converse to this is also true: if V(A) is congruence distributive and A is dualizable, then A has an NU term. An important generalization of the NU term for congruence distributive varieties is the cube term for congruence modular (CM) varieties, and it has been thought that a similar characterization of dualizability for algebras in a CM variety would also hold. We prove that if A omits tame congruence types 1 and 5 (all locally finite CM varieties omit these types) and is dualizable, then A has a cube term.

#### November 8

Colin Reid (University of Newcastle)

Totally disconnected, locally compact groups

**Abstract**: Totally disconnected, locally compact (t.d.l.c.) groups are a large class of topological groups that arise from a few different sources, for instance as automorphism groups of combinatorial structures, or from the study of isomorphisms between finite index subgroups of a given group. Two analogies are that they are like 'discrete groups combined with compact groups' or 'non-Archimedean Lie groups'. A general theory has begun to emerge in recent years, in which we find that the interaction between small-scale and large-scale structure in t.d.l.c. groups is somewhere between the two extremes that these analogies would suggest. I will give a survey of some ways in which these groups arise and a few recent results in the area.

#### November 15

Andrew Kelley (Binghamton University)

Maximal subgroup growth: current progress and open questions

**Abstract**: This is an update on my research on the maximal subgroup growth of certain f.g. groups. The focus is on metabelian groups, virtually abelian groups, and on the Baumslag-Solitar groups.

#### November 22

Name (University)

Title of Talk

Abstract: Abstract for Talk

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#### November 29

Joseph Cyr (Binghamton University)

## **Embedding Modes into Semimodules**

**Abstract**: A mode is an algebra which is idempotent and whose basic operations are homomorphisms. The main focus of this talk will be to give a generalization of Jezek and Kepka's embedding theorem for groupoid modes. We will show that a mode is embeddable into a subreduct of a semimodule over a commutative semiring if and only if it satisfies the so called Szendrei identities. Thus the operations on Szendrei modes can be represented in a particularly nice way. This will involve thinking of operations "additively", that is, taking an n-ary operation and considering it as a sum of n unary operations.

#### December 6

No talk this week (attend the algebra candidate talk on Friday)

- Pre-2014 semesters
- Fall 2014
- Spring 2015
- Fall 2015
- Spring 2016

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