

Mathematical Colloquia

Monday, 11 November 2019

17:15 h, Lecture Room 119

Dr. Luca Reggio, University of Bern

Formal languages, logic, and duality

Abstract:

Formal language theory is a branch of theoretical computer science concerned with the specification and manipulation of sets of strings of symbols, so-called formal languages. Two approaches have been remarkably effective in the study of languages: the algebraic one, and the logical one. Whereas the former relies on the notions of recognition by a monoid and of the syntactic monoid of a language, the latter is based on a semantics on finite words.

The deep connection between Stone duality and formal languages has started to emerge only in the last decade. One of the basic observations is that the algebraic and logical approaches to language theory correspond to the two sides of the duality. I will illustrate this connection, and present some recent results exploiting this duality theoretic viewpoint.

Part of this talk is based on joint works with Mai Gehrke, Daniela Petrisan, and Tomas Jakl.