
BERN-FRIBOURG GRADUATE SEMINAR

a seminar for Master and PhD students

Wednesday 24th May, 2023: 17:15 - 18:00

Room 2.73, Perolles 08, Fribourg

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The finite basis problem for idempotent semirings with a group reduct

Abstract

Determining for classes of algebras which of their members are finitely based (i.e., have a finitely axiomatized equational theory) is a classical problem in algebra. As a decidability question it has been first posed by Tarski in the early 60's whether there is an algorithm which decides for a given finite algebra if it is finitely based or not. It has been shown by Oates and Powell in 1964 that any finite group is finitely based, but for arbitrary finite algebras as McKenzie showed in 1996 the problem is undecidable. The problem is still open for the class of finite semigroups. In this talk we will consider idempotent semirings (or equivalently semilattice ordered monoids) which have a group as their multiplicative reduct. In contrast to the finite setting any non-trivial such semiring is infinite. Generalizing a result of Aceto, Ésik, and Ingólfssdóttir about tropical semirings we will see that no non-trivial idempotent semirings with a group reduct is finitely based.