SIMPLE COMMUTATIVE SEMIRINGS IN THE CONTEXT OF NUMBER THEORY

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Semiring is a generalization of a ring in the sense that no additive inverses are guaranteed. The classification of the simple commutative semirings (Bashir et al. '01) has opened a series of questions about their further structure. In the talk we refer to two of them. The first one is an explicit description of all the simple semirings contained in $\mathbb{R}^+$, the semiring of usual positive reals. Except the positive parts of fields, only some special types of such semirings, connected with prime valuations, are known. The second problem is whether every simple commutative semiring, that is finitely generated (but not finite), has to be idempotent. This question is equivalent to idempotency of finitely generated semifields, which we confirm for a small number of generators.

This is joint work with Vítězslav Kala
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