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Abstracts of Short Communications and Posters

Section:

2. Algebra

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We consider semirings with $1 \neq 0$
Definition. The mapping $\alpha : S \to R$ is called *an m-isomorphism* if α is an isomorphism of the multiplicative semigroups of the semirings S and R, i. e. $\alpha : (S, \cdot) \cong (R, \cdot)$. *Definition.* A semiring S is called *an UA-semiring (a semiring with unique addition)* if any m-isomorphism $\alpha : (S, \cdot) \cong (R, \cdot)$ of the semiring S onto an arbitrary semiring R is an isomorphism of semirings. In the class of boolean semirings we have: *Theorem* . Any nontrivial boolean ring (which is an UA-ring) $\langle R, \cdot, + \rangle$ is not an UA-semiring. The next theorem has many useful corollaries. *Theorem* . Let S be a semiring with idempotents e and f such that $e^2 = e, \quad f^2 = f, \quad ef = fe = 0 \quad$ and $\quad e + f = 1$, with the following conditions: $\forall s \in S \quad exesf = eyesf \Rightarrow exe = eye$; $fxfse = fyfse \Rightarrow fxf = fyf$ for $x, y \in S$. Then S is an UA-semiring. Thus such semirings as $M_n(S)$ and $T_n(S)$ over a semiring S are the UA-semirings.

Artamonova I. I., On UA-semirings, Fundamentalnaja i prikladnaja matematika, 1997, N 4, V 3.