

MATEMATIČNI KOLOKVIJI

On Length Sets in Krull Monoids

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Let H be a Krull monoid (e.g., the multiplicative monoid of nonzero elements of a Krull domain). Then every non-invertible element can be factored into irreducible elements. If $a = u_1 \cdot \dots \cdot u_k$, with $k \in \mathbb{N}_0$ and irreducibles u_1, \dots, u_k , then k is a factorization length and the set $L(a)$ of all factorization lengths of a is called the length set of a . The system $\mathcal{L}(H) = \{L(a) : a \in H\}$ of length sets is an infinite family of finite subsets of \mathbb{N}_0 . The structure of $\mathcal{L}(H)$ depends only on the class group of H and on the distribution of prime divisors in the classes. We provide an overview of the current state of knowledge regarding $\mathcal{L}(H)$ and present some new results for the case of torsion class groups.



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