Summary: The algebraic monoid structure of an incidence algebra is investigated. We show that the multiplicative structure alone determines the algebra automorphisms of the incidence algebra. We present a formula that expresses the complexity of the incidence monoid with respect to the two sided action of its maximal torus in terms of the zeta polynomial of the poset. In addition, we characterize the finite (connected) posets whose incidence monoids have complexity $\leq 1$. Finally, we determine the covering relations of the adherence order on the incidence monoid of a star poset.

MSC:
20M32 Algebraic monoids
16W20 Automorphisms and endomorphisms
06A11 Algebraic aspects of posets
14M25 Toric varieties, Newton polyhedra, Okounkov bodies

Keywords:
incidence algebras; regular monoids; completely regular monoids; complexity; group of semigroup automorphism; adherence order

Full Text: DOI

References:
[10] Pennell, EA; Putcha, MS; Renner, LE, Analogue of the Bruhat-Chevalley order for reductive monoids, J. Algebra, 196, 2, 339-368 (1997) · Zbl 0891.20039


This reference list is based on information provided by the publisher or from digital mathematics libraries. Its items are heuristically matched to zbMATH identifiers and may contain data conversion errors. It attempts to reflect the references listed in the original paper as accurately as possible without claiming the completeness or perfect precision of the matching.