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RESEARCH ARTICLE

A note on additively completely regular seminearrings

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Abstract
In the endeavour of obtaining semigroup theoretic analogues i.e., the analogues of structure theorems of completely regular semigroups in the setting of additively regular seminearrings we could obtain some results in Mukherjee et al. (Commun Algebra 45(12):5111–5122, 2017). But we could not obtain the analogue of (i) 'A semigroup is Clifford if and only if it is strong semilattice of groups' and (ii) ' A semigroup is completely regular if and only if it is a union of groups'. In Mukherjee et al. (Commun Algebra, https://doi.org/10.1080/00927872.2018.1524011) we could obtain the analogue of (i) for some restricted type of left (right) Clifford seminearrings. The main purpose of this paper is to complete the remaining task i.e., to obtain the analogue of (ii) for a class of additively completely regular seminearrings. In order to accomplish this we have characterized those seminearrings which are union of near-rings (zero-symmetric near-rings) in the class of additively completely regular seminearrings.

Keywords Left (right) completely regular seminearring · Generalized left (right) completely regular seminearring · Union of near-rings (zero-symmetric near-rings)

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