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Title: On several classes of additively non-regular C -semirings

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In this paper, the authors study several classes of additively non-regular C -semirings whose additive idempotents are central, including the generalized C -rpp semirings, C -rpp semirings, generalized C -abundant semirings and C -abundant semirings. After introducing the concept of generalized C -rpp semirings, the authors obtain their equivalent characterizations, and show that a semiring is a generalized C -rpp semiring if and only if it is a strong b -lattice of additively left cancellative halfings, and if and only if it is a subdirect product of a b -lattice and an additively left cancellative halfring. Also, the authors give the constructions of C -rpp semirings, generalized C -abundant semirings and C -abundant semirings. Consequently, the corresponding results of Clifford semirings and generalized Clifford semirings in [7] and [29] are extended and generalized.

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