

Amalgamation in classes of involutive commutative residuated lattices

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Amalgamation is investigated in classes of non-divisible, non-integral, and non-idempotent involutive commutative residuated lattices. We show that the class of odd and the class of even totally ordered, involutive, commutative residuated lattices fail the amalgamation property, and that it is for the same reason as the reason of failure of the amalgamation property in the class of discrete linearly ordered groups with positive normal homomorphisms. It is also proved that their subclasses formed by their idempotent-symmetric algebras have the amalgamation property but fail the strong amalgamation property. Finally, it is shown that the variety of semilinear, idempotent-symmetric, odd, involutive, commutative residuated lattices has the transferable injections property. Previous attempts at amalgamation of classes of involutive commutative residuated lattices have been focused on classes of algebras which are either idempotent or integral and divisible. The present study is a first one in such a general setting.

<https://arxiv.org/pdf/2012.14181.pdf>