On a class of ordered involutive monoids

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We consider a class of finite ordered involutive monoids (briefly OIM) that arose in our study of a certain categorical equivalence problem (see [1, 2, 3, 4]). It consists of OIMs satisfying the following conditions:

(C) completeness, that is, the elements $s, t \in S$ have a join in $S; \leq$ if and only if $st \leq 1$;

(D) distributivity, that is, for every $r, s, t \in S$, if the join $s \vee t$ exists, then $rs \vee rt$ also exists and $r(s \vee t) = rs \vee rt$;

(O) for every maximal element $m \neq 1$ of , we have $mm \not\leq m$.

In the present work we study the behaviour of OIMs with respect to some natural constructions (direct and semidirect product, ordinal sum, taking substructures). Also the full description of small OIMs (up to size 5) satisfying **(C)**, **(D)** and **(O)** is given.

References

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