ORTOGONAL IDEALS AND FILTERS IN
LATTICES

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The study of orthogonal ideals and filters of a lattice is carried out in this paper. Orthogonal ideals in rings are used in the study of codes. Here we not only introduce orthogonal ideals in a lattice but also orthogonal filters, filters are nothing but the dual concept of the ideal in a lattice. We study the orthogonality of filters. Two filters $S$ and $R$ of a lattice $L$ is defined to be orthogonal if $S \cap R = \{1\} = \{s.r / s \in S \text{ and } r \in R\}$. It is proved that there exist lattices in which no pair of ideals or filters is orthogonal. We define the concept of self-orthogonal ideals and self-orthogonal filters. An ideal $I$ of a lattice $L$ is a self-orthogonal ideal if $I.I = \{0\}$ and a filter $J$ of the lattice $L$ is a self-orthogonal filter if $J.J = \{1\}$. We get several interesting results about them. We also study and obtain generalized properties.