**ABDALLA**, Abdurahman Masoud (Mathematics)

*Binary closure operators*

The study introduces and studies so-called binary closure operators on ordered sets, and applies them in the theory of categorical closure operators, which is one of the main branches of modern categorical topology. The notion of a binary closure operator is a simultaneous self-dual generalisation of the notion of a closure operator and the notion of an interior operator on an ordered set. The study opens up a new research direction which lies at the overlap of order theory, topology and category theory.

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