Special filters in bounded lattices

Ivan Chajda, Miroslav Kolařík
Palacký University Olomouc

Helmut Länger
TU Wien and Palacký University Olomouc

miroslav.kolarik@upol.cz

M.S. Rao recently investigated some sorts of special filters in distributive pseudocomplemented lattices. We extend this study to lattices which need neither be distributive nor pseudocomplemented. For this sake we define a certain modification of the notion of a pseudocomplement as the set of all maximal elements belonging to the annihilator of the corresponding element. We prove several basic properties of this notion and then define coherent, closed and median filters as well as D-filters. In order to be able to obtain valuable results we often must add some additional assumptions on the underlying lattice, e.g. that this lattice is Stonean or D-Stonean. Our results relate properties of lattices and of corresponding filters. We show how the structure of a lattice influences the form of its filters and vice versa.