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Lower semicontinuous functions with values in a continuous lattice

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Abstract: It is proved that for every continuous lattice there is a unique semiuniform structure generating both the order and the Lawson topology. The way below relation can be characterized with this uniform structure. These results are used to extend many of the analytical properties of real-valued l.s.c. functions to l.s.c. functions with values in a continuous lattice. The results of this paper have some applications in potential theory.

Keywords: continuous lattices, lower semicontinuous functions, potential theory

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