Spectra of algebraic structures

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a joint work with

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Abstract

It is possible to attach a "spectrum" to several algebraic structures: commutative rings with identity, bounded distributives lattices, commutative semirings with identity, commutative C^*-algebras, commutative monoids, abelian ℓ-groups, MV-algebras, continuous lattices, Zariski-Riemann spaces,... In all these cases, the spectrum turns out to be a spectral topological space, i.e., a sober compact space in which the intersection of any two compact open sets is compact, and the compact opens forms a basis for the topology. In some other cases, for instance for commutative rings without identity or noncommutative rings, one gets a spectrum that is a little less: it is always a sober space, but sometimes compactness is missing, or the intersection of two compact open sets is not necessarily compact. In this talk we will investigate the reason of this "ubiquity of spectral spaces", giving the proper setting for this kind of questions: properly defined multiplicative lattices. I will also present some work in progress with Francesco de Giovanni and Marco Trombetti (University of Naples) about spectra of groups.

Keywords

Multiplicative lattice, Lattice of ideals, Spectral space, Prime spectrum, Zariski topology.

References

[1] A. Facchini, C. A. Finocchiaro and G. Janelidze, *Abstractly constructed prime spectra*, submitted for publication (2021), arXiv:2104.09840