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Title: A localization principle in pre-Riesz spaces

Abstract:
In recent years, the investigation of ordered structures has been extended from the classical theory of vector lattices to general partially ordered vector spaces. We give an overview on pre-Riesz spaces, an important class of partially vector spaces, introduced by van Haandel in the 1990s.

Moreover, we present a new localization principle in pre-Riesz spaces, motivated by the well-known localization in vector lattices. In Archimedean vector lattices, every principal ideal can be represented as a uniformly dense sublattice of some $\mathrm{C}(K)$ space, where K is a compact Hausdorff space. Therefore, by restricting to a suitable principal ideal, calculations can be done concretely using continuous functions. By means of the functional representation of order unit spaces, we present a similar method in pre-Riesz spaces as well. As an application, we prove an extension and factorization result for n-Riesz* homomorphisms on Archimedean pre-Riesz spaces.