

EXTENDED SEMINORMS AND EXTENDED TOPOLOGICAL VECTOR SPACES

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ABSTRACT. We introduce the notions of extended topological vector spaces and extended seminormed spaces, following the main ideas of extended normed spaces, which were introduced by G. Beer and J. Vanderwerff. We provide a topological study of such structures, giving a unifying theory with main applications in the study of spaces of continuous functions. We also generalize classical results of functional analysis, as Hahn-Banach extension theorems, open mapping theorem and closed graph theorem.