FUNCTION VALUED METRIC SPACES

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Abstract. In this paper we introduce the notion of an $F$-metric, as a function valued distance mapping, on a set $X$ and we investigate the theory of $F$-metric spaces. We show that every metric space may be viewed as an $F$-metric space and every $F$-metric space $(X, \delta)$ can be regarded as a topological space $(X, \tau_{\delta})$. In addition, we prove that the category of the so-called extended $F$-metric spaces properly contains the category of metric spaces. We also introduce the concept of an $\bar{F}$-metric space as a completion of an $F$-metric space and, as an application to topology, we prove that each normal topological space is $\bar{F}$-metrizable.

References


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