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On the topology and wt -distance on metric type spaces. (English) Zbl 1333.54035

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Summary: Recently, *M. A. Khamsi* and the first author [*Nonlinear Anal., Theory Methods Appl., Ser. A, Theory Methods* 73, No. 9, 3123–3129 (2010; [Zbl 1321.54085](#))] discussed a natural topology defined on any metric type space and noted that this topology enjoys most of the metric topology like properties. In this paper, we define topologically complete type metrizable space and prove that being of metrizable type is preserved under a countable Cartesian product and establish the fact that any set in a complete metric type space is a topologically metrizable type space. Next, we introduce the concept of wt -distance on a metric type space and prove some fixed point theorems in a partially ordered metric type space with some weak contractions induced by the wt -distance.

MSC:

[54E35](#) Metric spaces, metrizable

[54H25](#) Fixed-point and coincidence theorems (topological aspects)

[54F05](#) Linearly ordered topological spaces, generalized ordered spaces, and partially ordered spaces

Cited in **13** Documents

Keywords:

[metric type space](#); [topologically complet](#); [Alexandroff theorem](#); [\$wt\$ -distance](#); [fixed point theorem](#)

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