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Addition theorems and D -spaces

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Abstract: It is proved that if a regular space X is the union of a finite family of metrizable subspaces then X is a D -space in the sense of E. van Douwen. It follows that if a regular space X of countable extent is the union of a finite collection of metrizable subspaces then X is Lindelöf. The proofs are based on a principal result of this paper: every space with a point-countable base is a D -space. Some other new results on the properties of spaces which are unions of a finite collection of nice subspaces are obtained.

Keywords: D -space, point-countable base, extent, metrizable space, Lindelöf space

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