

On countable multiplicity of mappings

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A number of papers of mathematicians are devoted to the study of countable-to-one mappings, in particular N.N. Luzin, P.S. Alexandrov, A.N. Kolmogorov, B.A. Pasyukov, Yu.Yu. Trochymchuk. By the theorem of Yu. Yu. Trochymchuk, a dense open set of points of local homeomorphism exists for each countable-to-one continuous mapping of two manifolds of equal dimension [1]. Moreover, for the existence of a dense set of points of local homeomorphism, it suffices to require a countable multiplicity of zero-dimensional mapping, even for points of some subset of the second category in the image [2]. In the one-dimensional case, the statement of the theorem remains valid for nowhere constant functions of the first Baire class with the Darboux property and with the set of countable levels of the second category in the image [3]. It turns out that if we neglect some set of the first category, then with a countable-to-one arbitrary B -measurable mapping of a complete separable zero-dimensional uncountable space there exists a dense set of points of local homeomorphism [4].

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