Applications of Mazurkiewicz type sets in the study of measurability properties of sets and functions

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Mazurkiewicz set has a difficult and interesting descriptive structure and the study their measurability properties is very actual. In general, one cannot assert that a Mazurkiewicz set is necessarily nonmeasurable with respect to λ_2-measure. Moreover, there exists Mazurkiewicz set X in the euclidian plane $\mathbf{R}^2$, which is measurable with respect λ_2 and $\lambda_2(X) = 0$. Slightly changing the argument of Mazurkiewicz, we can show that there exists a Mazurkiewicz set Y, which is λ_2-thick. Here we can remark, that there exists a Mazurkiewicz set, which is relatively measurable with respect to the class $M(\mathbf{R}^2)$.

Finally we describe Mazurkiewicz sets in the context of negligible sets with respect $M(\mathbf{R}^2)$:

- all Mazurkiewicz sets are negligible with respect $M(\mathbf{R}^2)$;
- there exists Mazurkiewicz set which is absolutely negligible with respect $M(\mathbf{R}^2)$;
- there exists Mazurkiewicz set which is not-absolutely negligible with respect $M(\mathbf{R}^2)$;

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