SOME PROPERTIES OF $\mathcal{I}$-LUZIN SETS

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We consider a notion of $\mathcal{I}$-Luzin set which generalizes the classic notion of Luzin set and Sierpiński set on Euclidean spaces. We show that there is a translation invariant $\sigma$-ideal $\mathcal{I}$ with Borel base for which $\mathcal{I}$-Luzin set can be $\mathcal{I}$-measurable. If we additionally assume that $\mathcal{I}$ has Smial property (or its weaker version) then $\mathcal{I}$-Luzin sets are $\mathcal{I}$-nonmeasurable. We give some constructions of $\mathcal{I}$-Luzin sets involving additive structure of $\mathbb{R}^n$. Moreover, we show that if $L$ is a Luzin set and $S$ is a Sierpiński set then the complex sum $L + S$ cannot be a Bernstein set.

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