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N-FUNCTIONS: A QUERY

Abstract

A question concerning N-functions is posed.

Definition. By an N-function on $\mathbb{R}$ we mean a function that maps sets of measure zero to sets of measure zero.

Question. Given a non-constant, continuous N-function f is there a continuous N-function g, depending on f, such that the sum $f + g$ is not an N-function?

Remark. We deduce from the Mazurkiewicz example (see [M]) that any non-constant linear function enjoys this property.

References

[M] S. Mazurkiewicz, *Sur les fonctions qui satisfont à la condition (N)*, Fund. Math., **16**, (1930), 348–352.

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