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GRADIENT MAPPING OF FUNCTION OF SEVERAL VARIABLES

In 1950 Zygmunt Zahorski gave a complete description of level sets system corresponding to derivatives of real differentiable functions. The problem of characterization of gradient mapping from $\mathbb{R}^n$, $n \geq 2$, remains open.

We focus on the question how "small" can preimages of open sets under the gradient mapping be with respect to Lebesgue measure and Hausdorff dimension.