SURVIVOR SETS OF GAUSS MAP WITH A HOLE AT 1

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Abstract:

Given $\alpha \in [0,1]$, we investigate the set of numbers sharing identical representation of regular continued fractions and α-continued fractions. We prove that modulo a countable set such a set is a survivor set of the Gauss map with a hole at 1, i.e., the set of points x such that all the iterations under Gauss map of x is less than α. Hence, these two sets have the same Haudorff dimension. We further show that with respect to α, the function of such Hausdorff dimensions is increasing and locally constant almost everywhere. Moreover, we show that the function is not continuous at 0, which is a new phenomenon in the study of open dynamical systems. This is a joint work with Cheng LIU.