

Peano continua with self regenerating fractals

Magdalena Nowak

Jan Kochanowski University in Kielce

`mnowak@ujk.edu.pl`

We deal with the question posed by M. Hata: is every Peano continuum a topological fractal? A compact space X is a topological fractal if there exists F , a finite family of selfmaps on X that makes X an invariant set for the family F and satisfies the condition that for every open cover U of X there is a natural number n such that for any maps f_1, \dots, f_n the image $f_1 \circ \dots \circ f_n(X)$ is contained in some set from U . We show that a Peano continuum is a topological fractal if it contains so-called self regenerating fractal with nonempty interior. A Hausdorff topological space A is a self regenerating fractal if for every non-empty open subset U , A is a topological fractal for some family of maps that are constant outside of U .