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Titlul prezentării: A Potpourri of Topics from Fractal Interpolation Theory

ABSTRACT: Beginning with the definition of an iterated function system (IFS) tailored to our purposes, we briefly review some properties of such IFSs and present the geometric construction of affine fractal interpolation functions given by Barnsley in 1986.

We then take this original geometric construction and regard it as a construction in an appropriate function space thus leading us to the concept of Read-Bajraktarević (RB) operator.

Realizing that solving functional equations defined on function spaces is paramount to finding fixed points of such RB operators, we can state the *fractal interpolation problem*, namely, the construction of a global function $\psi : X = \prod_{i=1}^{n} X_i \to F$ belonging to some prescribed function space and satisfying a finite number of functional equations of the form

$$\psi\big(h(x)\big) = v\big(x, \psi(x)\big), \qquad x \in X_i$$

for a function $h : X \to Xi$ and a certain function $v : X \times F \to F$, where X is a bounded subset of a Banach space E and F is a given Banach space.

As the global function ψ is the fixed point of an RB operator and thus satisfies a self-referential equation, the graph of ψ is in general a fractal set (and thus the attractor of an underlying IFS).

In the above context, we present different facets of fractal interpolation. For each of these topics, we consider appropriate function spaces on which the fractal interpolation problem can be solved.