

GURARIĬ OPERATORS ARE GENERIC

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An operator $U : V \rightarrow W$ between Banach spaces is defined to be *universal* if for every operator $T : X \rightarrow Y$ with $\|T\| \leq \|U\|$, there exist linear isometric embeddings $i : X \rightarrow V$, $j : Y \rightarrow W$ such that $U \circ i = j \circ T$.

In [2] was constructed a universal operator $\Omega : \mathbb{G} \rightarrow \mathbb{G}$, where \mathbb{G} denotes the Gurariĭ space. More precisely, it was introduced the notion of a Gurariĭ operator (which is an operator counterpart of the notion of a Gurariĭ space) and was presented a construction of a Gurariĭ operator (as the Fraïssé limit in a suitable category). Moreover, it was proven that every Gurariĭ operator is universal.

An operator $G : X \rightarrow Y$ between Banach spaces is called *Gurariĭ* if G is nonexpansive and for any $\varepsilon > 0$, any nonexpansive operator $T : A \rightarrow B$ between finite-dimensional Banach spaces, any Banach subspaces $A_0 \subseteq A$, $B_0 \subseteq B$ with $T[A_0] \subseteq B_0$, and any isometric embeddings $i_0 : A_0 \subseteq X$, $j_0 : B_0 \subseteq Y$ with $G \circ i_0 = j_0 \circ T|_{A_0}$, there exist ε -isometric embeddings $i : A \rightarrow X$ and $j : B \rightarrow Y$ such that $i|_{A_0} = i_0$, $j|_{B_0} = j_0$ and $G \circ i = j \circ T$.

In this talk we will present several characterizations of Gurariĭ operators. The main result shows that the Gurariĭ operators form a dense G_δ -set in the space $B(\mathbb{G})$ of all nonexpansive operators on the Gurariĭ space \mathbb{G} , endowed with the strong operator topology. This implies that universal operators on \mathbb{G} form a residual set in $B(\mathbb{G})$.

REFERENCES

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