One-sided epsilon-approximants

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Abstract

Two common approximation notions in discrete geometry are ε-nets and ε-approximants. Of the two, ε-approximants are stronger. For the family of convex sets, small ε-nets exist while small ε-approximants unfortunately do not. In this talk, we introduce a new notion "one-sided ε-approximants", which is of intermediate strength, and prove that small one-sided ε-approximants do exist. The proof is based on a (modification of) the regularity lemma for words by Axenovich–Person–Puzynina. Joint work with Gabriel Nivasch.