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Participant

Family name : Zlotnikov
First name : Ilia
Institution : Department of Mathematics and Physics, University of Stavanger
Email : ilia.k.zlotnikov@uis.no

Title of the talk

On extreme points of the unit ball of Paley-Wiener space over two intervals

Coauthor(s)

A. Ulanovskii

Abstract

Let X be a Banach space. By $b(X)$ we denote its unit ball, i.e.

$$b(x) = \{x \in X \, : \, \|x\|_X \leq 1\}.$$

We say that f is an extreme point of $b(X)$ if it is not a proper convex combination of two distinct points from $b(X)$. The problem of description of extreme points of the unit ball $b(X)$ for various function spaces X is classical (and it is non-trivial when X is equipped with L^∞ or L^1 norm). For instance, the extreme points of the unit ball of Hardy spaces H^1 and H^∞ were described in paper [3] due to W. Rudin and K. de Leeuw. For the Paley-Wiener space PW_S^1 the description of extreme points of $b(PW_S^1)$

was obtained by K. Dyakonov in [2] when S is a single interval, i.e. $S = [-a, a]$, $a > 0$. However, the case when S has a gap was open and the corresponding problem was formulated in [1]. In the recent paper [4] (the joint work with A. Ulanovskii), we consider the spectra S which consist of two symmetric intervals, $S = [-\sigma, -\rho] \cap [\rho, \sigma]$. It turns out that the structure of the set of extreme points depends on the length of the gap in spectra. For a long gap, i.e. for $\rho > \sigma/2$ we managed to give a full description of extreme points, while for the short gap ($\rho < \sigma/2$) the structure of the set of extreme points is more complicated.

References

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