

# Linear independence and sets of uniqueness

(Talk)

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(joint work with Hrvoje Šikić, Department of Mathematics, University of Zagreb)

Various properties of the system of integer translates,  $\{\psi_k\}$ , of a square integrable function  $\psi$  can be expressed in terms of the periodization function  $p_\psi(\xi) = \sum_{k \in \mathbb{Z}} |\widehat{\psi}(\xi + k)|^2$ . It is known that having redundancy in such systems is sometimes useful, so it is important to understand when this is possible. One of the problems related with that question is the problem of the  $\ell^p$ -linear independence for various  $p$  (the problem for  $p = 2$  is already solved). We have recently showed (H.Šikić, I.Slamić, “Linear independence and sets of uniqueness”, to appear in Glasnik matematički) that if  $p \in [1, 2]$  and the system is Bessel,  $\ell^p$ -linear independence is equivalent to periodization function vanishing almost everywhere on a set which is an  $\ell^p$ -set of uniqueness. As a continuation of the work presented in the mentioned article, we will now present some new partial results that will explain the situation beyond that in the article.

MSC2010: 42C15, 46E30.

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