Delsarte's Method in Number Theory

Talk

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Delsarte's method consists of finding appropriate "witness" functions in a chosen compact Abelian topological group, such that its Fourier transform is nonnegative, and so bounding cardinality of certain sets. We discuss applications of the method to difference sets of integers, uniform distribution properties of certain sets of integers, but also some other problems in number theory and ergodic theory. Specifically, we apply it to obtain bounds on sets whose difference set does not contain shifted primes $p-1$, and also new bounds related to the van der Corput property of integer polynomials.

Note: A part of the talk is a joint work with Braslav Rabar and Marina Nincevic.

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Section: 3.

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