Cyclic subspace codes, Sidon spaces and linear sets

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A Sidon space V is an $\mathbb{F}_q$-subspace of $\mathbb{F}_{q^n}$ such that if $ab = cd$, where $a, b, c, d \in V \setminus \{0\}$, then $\{a\mathbb{F}_q, b\mathbb{F}_q\} = \{c\mathbb{F}_q, d\mathbb{F}_q\}$. Sidon spaces have been introduced by Bachoc, Serra and Zémor in 2017 as the q-analogue of Sidon sets, classical objects widely studied in additive combinatorics. The interest on Sidon spaces has increased quickly, especially after the work of Roth, Raviv and Tamo in 2018, in which they highlighted the correspondence between Sidon spaces and cyclic subspace codes. In this talk we will give a brief overview on the relation between cyclic subspace codes, Sidon spaces and linear sets, showing how algebraic and geometric techniques can help also in the theory of cyclic subspace codes.

References

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