Non-uniform sampling over spiraling curves

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In this work we characterize the spectra of sampling sets contained in planar spiral-like curves. More precisely, when Λ is a subset of a set of the form \{ (r(θ) \cos(2πθ), r(θ) \sin(2πθ)) : θ ≥ 0 \}, then under some assumptions on the modulus r(θ) we give a complete characterization of the possible closed convex central-symmetric spectra for which Λ is a sampling set in terms of a critical value of the gap \( ρ(Λ) := 2 \sup_{x \in \mathbb{R}^2} d(x, Λ) \). We also provide some particular examples of this type of curves.

The main tools come from Beurling’s work in the balayage of Fourier transforms [1, 2].

Joint work with: Philippe Jaming (Université de Bordeaux), José Luis Romero (Österreichischen Akademie der Wissenschaften).

References

