Spherical Fibonacci Points: Hyperuniformity, and more

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One way of explicitly constructing point sets on the unit sphere in $\mathbb{R}^3$ is to map a suitable set in the unit square to the sphere by means of an area-preserving Lambert transformation.

Using the example of the Fibonacci lattice in the unit square, we study properties of its spherical analogue. In particular, we consider hyperuniformity aspects (cf. [1, 2]).

Joint work with: Josef Dick (UNSW, Yuan Xu (University of Oregon).

References

[1] J. S. Brauchart, P. J. Grabner, and W. Kusner. Hyperuniform point sets on the sphere: deterministic aspects. *Constr. Approx.*, 50(1):45–61, 2019.

[2] J. S. Brauchart, P. J. Grabner, W. Kusner, and J. Ziefle. Hyperuniform point sets on the sphere: probabilistic aspects. *Monatsh. Math.*, 192(4):763–781, 2020.