APPROXIMATION TO UNIFORM DISTRIBUTION ON SO(3)

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The first half of the talk will be a general overview of point distributions, done mainly on the unit cube and sphere in several dimensions. We will introduce the necessary notions and give examples - this part of the talk will be accessible to a broad audience.

The second part of the talk will give an overview of a recent paper of the speaker and show how to indicate that a sequence of points on general compact manifolds (in our example: SO(3)) might be well distributed.

Using the theory of determinantal point processes, as done and initiated by J. Marzo, J. Ortega-Cerdà, C. Beltrán, U. Etayo, K. Alishashi and M. S. Zamani to name a few, one can speak of properties of points for which an existence result exists - this will be by no means an introduction to this theory (a reference will be given), but a very small part that is useful in reaching our goal.

The results that will be given are bounds on the Green energy using L^2-norms of Gegenbauer (ultra spherical) polynomials of index 2.

References

[1] C. Beltrán and D. Ferizović *Approximation to uniform distribution in SO(3)*, arXiv:1901.10840 (2019)