Low-energy points on the sphere and the real projective plane

Pedro R. López-Gómez
Universidad de Cantabria, Spain
lopezpr@unican.es

In the last decades, the problem of evenly distributing points on manifolds like spheres and projective spaces has attracted the attention of the mathematical community due to its theoretical interest and its numerous practical applications, constituting nowadays a very active field of research.

In this poster, I will tackle the problem of distributing points on the usual two-dimensional sphere and on the real projective plane. More precisely, I will present a generalization of a family of points on $\mathbb{S}^2$, the Diamond ensemble, containing collections of N points on $\mathbb{S}^2$ with very low logarithmic energy for all $N \in \mathbb{N}$. In addition, I will also show how the ideas for distributing points on $\mathbb{S}^2$ can be extended to the real projective plane, thereby obtaining lower and upper bounds for the Green and logarithmic energies which constitute the best results in that regard thus far.

Joint work with Carlos Beltrán (Universidad de Cantabria, Spain) and Ujué Etayo (Universidad de Cantabria, Spain).