

**External Fields and Uniform Distribution  
in Squares and Cubes**

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**Abstract**

Points in the unit cube in  $\mathbb{R}^d$  that maximize, say, the sum of all mutual Euclidean distances, or minimize, say, their potential energy (harmonic kernel), are located at the boundary of the unit cube. This phenomenon is a consequence of classical potential theory. We introduce suitable external fields to obtain a uniform distribution over the unit cube of optimal configurations for the corresponding “energy functional”.