

Discretizing manifolds via minimum energy points

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An intuitive method for distributing N points on a manifold $A \subset \mathbf{R}^d$ is to consider minimal s -energy arrangements of points that interact through a power law (Riesz) potential $V = 1/r^s$, where $s > 0$ and r is Euclidean distance in \mathbf{R}^d . Under what conditions will these points be “uniformly” distributed on A for large N ? In this talk I will present recent results characterizing asymptotic properties of s -energy optimal N -point configurations for a class of rectifiable d -dimensional manifold and $s \geq d$. Our proofs rely on multiresolution techniques. This is joint work with E. B. Saff.