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Asymptotics for Riesz d-energies of some d-rectifiable manifolds

For compact $A \subset \mathbb{R}^p$, $1 \leq d \leq p$, and $\omega_N = \{x_1, \ldots, x_N\}$ an N-point subset of A, the Riesz d-energy of ω_N is $E_d(\omega_N) := \sum_{\substack{x_i \neq x_j \\ x_i, x_j \in \omega_N}} |x_i - x_j|^{-d}$ for the Euclidean distance $|\cdot|$, and the minimal energy for fixed N is $\mathcal{E}_d(N, A) := \min_{\omega_N \subset A} E_d(\omega_N)$.

If A is contained in a d-dimensional C^1 manifold, then some very elegant asymptotics hold for both the minimal energies $\mathcal{E}_d(N, A)$ and the limiting distributions of the minimizing configurations ω_N^*.

We discuss a recent extension of such asymptotics to certain types of d-rectifiable manifolds.