1015-41-108 **Sergiy V Borodachov*** (sergiy.v.borodachov@vanderbilt.edu), SC 1229C, Department of Mathematics, Vanderbilt Univeristy, 2201 West End Avenue, Nashville, TN 37240, and **Doug P Hardin** (doug.hardin@vanderbilt.edu) and **Edward B Saff** (esaff@math.vanderbilt.edu).
On the behavior of the minimal Riesz s-energy for large values of s.

For $A \subset \mathbf{R}^{d'}$ define

$$\mathcal{E}_s(A, N) := \inf_{\{x_1,\ldots,\, x_N\}\subset A} \sum_{i\neq j} \frac{1}{|x_i - x_j|^s}, \quad s > 0.$$

Authors earlier showed that for a d-rectifiable set $A \subset \mathbf{R}^{d'}$ (Lipschitz image of a d-dimensional compact set, $d \le d'$)

$$\lim_{N\to\infty} \frac{\mathcal{E}_s(A, N)}{N^{1+s/d}} = \frac{C_{s,d}}{\mathcal{H}_d(A)^{s/d}}, \quad s > d,$$

where $C_{s,d}$ is a positive (unknown for $d > 1$) constant independent of A, and $\mathcal{H}_d$ is the d-dimensional Hausdorff measure. Let also

$$\delta_N(A) := \sup_{\{x_1,\ldots,\, x_N\}\subset A} \min_{i\neq j} |x_i - x_j|$$

be the best-packing radius on A and

$$\Delta_d(A) := \lim_{N\to\infty} \delta_N(A) \cdot N^{1/d}.$$

We show the following:

1. For every $d > 1$

$$\lim_{s\to\infty} C_{s,d} = \frac{1}{\Delta_d([0, 1]^d)}.$$

2. If K is the classical Cantor subset of $[0,1]$, then for s sufficiently large

$$0 < \liminf_{N\to\infty} \frac{\mathcal{E}_s(K,N)}{N^{1+s\log_2 3}} < \limsup_{N\to\infty} \frac{\mathcal{E}_s(K,N)}{N^{1+s\log_2 3}} < \infty.$$

3. If $A \subset \mathbf{R}^{d'}$ is a d-rectifiable set, then

$$\Delta_d(A) = \mathcal{H}_d(A)^{1/d} \cdot \Delta_d([0,1]^d).$$

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