1078-52-227 **A V Bondarenko** (andriybond@gmail.com), Department of Mathematics, National Taras Shevchenko University, Kyiv, Ukraine, **D P Hardin** (doug.hardin@vanderbilt.edu), Department of Mathematics, Vanderbilt University, Nashville, TN 37240, and **E B Saff*** (edward.b.saff@vanderbilt.edu), Department of Mathmatics, Vanderbilt University, Nashville, TN 37240. *Quasi-uniformity of best-packing configurations.* Preliminary report.

Let A be a compact infinite metric space with metric m and let $\omega_N = \{x_i\}_{i=1}^N \subset A$ denote a configuration of $N \geq 2$ points in A. The *separation distance of* ω_N is

$$\delta(\omega_N) := \min_{1 \leq i \neq j \leq N} (x_i, x_j),$$

and the *mesh norm* (*covering radius*) *of* ω_N *with respect to* A is

$$\rho(\omega_N, A) := \max_{y \in A} \min_{1 \leq i \leq N} (y, x_i).$$

An N-point *best-packing configuration* ω_N^* is a configuration such that

$$\delta_N(\omega_N^*) := \max\{\delta(\omega_N) \colon \omega_N \subset A,\ |\omega_N| = N\}.$$

We investigate upper and lower bounds for the *mesh-separation ratio* (or *mesh-ratio*)

$$\gamma(\omega_N^*, A) := \rho(\omega_N^*, A)/\delta(\omega_N^*).$$

Furthermore, we study this quantity for best-packing configurations that are the limits of N-point minimal Riesz s-energy configurations. For the sphere $S^2 \subset \mathbb{R}^3$ we show that for $N = 5$ the limit of such s-energy configurations as $s \to \infty$ is the pyramid with square base (the 5-point best-packing configuration that has the maximum number of equal-distance pairs). (Received December 09, 2011)