1078-41-379 **J. Tyler Whitehouse*** (tyler.whitehouse@gmail.com), 1326 Stevenson Center, Nashville, TN 37240, and **Doug Hardin** (doug.hardin@vanderbilt.edu) and **Ed B. Saff** (edward.b.saff@vanderbilt.edu). *Quasi-uniformity of minimal weighted energy points on compact metric spaces.*

The problem of finding configurations that are optimally-distributed on a set appears in a number of guises including best-packing problems, coding theory, geometrical modeling, statistical sampling, radial basis approximation and golf-ball design. We consider the geometry of N-point configurations $\{x_i\}_{i=1}^N$ on a compact set A (with a metric m) that minimize a *weighted Riesz s-energy* functional of the form

$$\sum_{i \neq j} \frac{w(x_i, x_j)}{m(x_i, x_j)^s}$$

for a given weight function w on $A \times A$ and a parameter $s > 0$.

Specifically, if A supports an Ahlfors α-regular measure, we prove that whenever $s > \alpha$, any sequence of weighted minimal Riesz s-energy N-point configurations on A (for 'nice' weights) is quasi-uniform in the sense that the ratios of its mesh norm to separation distance remain bounded as N grows. Furthermore, if A is an α-rectifiable compact subset of Euclidean space with positive and finite α-dimensional Hausdorff measure, one may choose the weight w to generate a quasi-uniform sequence of configurations that have (as $N \to \infty$) a prescribed positive continuous limit distribution with respect to α-dimensional Hausdorff measure. This is joint work with E. Saff and D. Hardin. (Received December 13, 2011)