1163-37-933 **William Ott*** (ott@math.uh.edu), **Edward Stout** and **Zijie Zhou**. *Quantization of fractal sets and measures in Banach spaces.*

To what extent can finite-dimensional data be used to make inferences about infinite-dimensional objects? Consider a set X or a measure μ in a Banach space $\mathfrak{B}$. A nonlinear map $f : \mathfrak{B} \to \mathbb{R}^m$ produces a quantized image of the set or measure, $f(X)$ or $f_*(\mu)$. In this talk, we use prevalence, the theory of projection constants, and thickness exponents to investigate how well a typical nonlinear map f preserves the structure of X or μ. Does a typical f embed X? If so, what is the Hölder regularity of the inverse? Does a typical f preserve the Hausdorff dimension of X? For the embedding problem, we present a new theorem that improves on recent work of Margaris and Robinson. Our theorems on preservation of Hausdorff dimension build upon work that has been done in the Hilbert space setting. This is joint work with Edward Stout and Zijie Zhou. (Received September 14, 2020)