The purpose of this presentation has two main objectives.

Firstly, we introduce the notion of prevalence. The main purpose is to define a translation-invariant "almost every" in an infinite-dimensional vector space. This is well known that there doesn’t exist an analogue of the Lebesgue measure on such spaces, but a different characterization of negligible sets on $\mathbb{R}^n$ leads to a definition of such sets in infinite-dimensional spaces. We explain why this seems to be a reasonable definition and we present some illustrative examples.

Secondly, we introduce Hölder spaces $C^\alpha(\mathbb{R}^d)$ ($\alpha > 0$), which form a continuum between the spaces $C^n(\mathbb{R}^d)$ composed of $n$ times continuously differentiable functions. We also introduce the space $SM^\alpha(\mathbb{R}^d)$ of strongly monoHölder functions which is composed of the most "irregular" functions in the Hölder space $C^\alpha(\mathbb{R}^d)$. Afterwards, we present some recent prevalent results about these functions. One of them states that $SM^\alpha(\mathbb{R}^d)$ is a prevalent subset of $C^\alpha(\mathbb{R}^d)$.

References
