Abstract

In this lecture, I will present a convenient setting that we proposed for infinite-dimensional analysis, in which differentiation (in some weak sense) and integration operations can be easily performed, integration by parts can be conveniently established under rather weak conditions, and especially some nice properties and consequences obtained by convolution in Euclidean spaces can be extended to infinite-dimensional spaces in some sense by taking the limit. Compared to the existing tools in infinite-dimensional analysis, our setting enjoys more convenient and clearer links with that of finite dimensions, and hence it is more suitable for computation and studying some analysis and geometry problems in infinite-dimensional spaces.