

# Iterates of Bernstein-type operators and some diffusions in population genetics

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The Bernstein operator is a positive linear operator on the Banach space of continuous functions on  $[0, 1]$ , which is used to show the celebrated Weierstrass approximation theorem from a probabilistic perspective. In this talk, we introduce an extension of the Bernstein operator to the  $d$ -dimensional cases and discuss some limit theorems for the iterates of the operator. As the limit, we capture the  $d$ -dimensional Wright–Fisher diffusion with mutation which is well-studied in population genetics. Some further possible directions of these limit theorems including infinite-dimensional cases are discussed as well. Based on a joint work with Takatoshi Hirano.