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Large Deviations and Quasi-Potential of a Fleming-Viot Process

Shui Feng, *McMaster University*
Jie Xiong, *University of Tennessee*

Abstract

The large deviation principle is established for the Fleming-Viot process with neutral mutation when the process starts from a point on the boundary. Since the diffusion coefficient is degenerate on the boundary, the boundary behavior of the process is investigated in detail. This leads to the explicit identification of the rate function, the quasi-potential, and the structure of the effective domain of the rate function.

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