q-PROCESSES IN MODELING COALESCENT WITH RECOMBINATION

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Abstract:

The stochastic evolution of a DNA segment that experiences recombination is a complex process, there have been some analyses based on simulations or using heuristic methods. In collaboration with the CAS-MPG Partner Institute for Computational Biology and Beijing Jiaotong University, recently we have developed a rigorous mathematical model along with a new algorithm. We believe that our new model will advance the study of recombination. Our model relies heavily on the theory of q-processes. In this talk we shall describe in detail the q-process arising from our model and report the methods and techniques of q-processes which we have employed in the study of coalescent with recombination.