

Deviation Inequalities, Large Deviations and Moderate Deviations for Some Markov Processes

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Abstract: This talk introduces some recent results on deviation inequalities, large deviations and moderate deviations for Markov processes. Talagrand deviation inequality for empirical processes is extended to ψ -mixing Markov chains and this result is applied to non-parameter statistics to obtain large deviations and moderate deviations of estimators. Some results on large deviations and moderate deviations for some Markov processes and some models in particle system, including exclusion processes and Ginzberg-Landau models, are presented. Some logarithmic Sobolev type inequalities and Nash type inequalities for particle systems are also introduced.