Title:	Complex langevin method and its validity in removing the sign problem
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Abstract:	Numerical simulations of theories with complex action has been a long standing prob- lem in theoretical physics. The failure of Monte Carlo method for complex actions has earned this problem a name - the sign problem. In this project, we explore a numerical method, which is recently being used to simulate complex actions - the complex Langevin method. Numerical simulations of theories with complex actions are done on a point and on a lattice. The mathematical justification of the complex Langevin method is studied and numerical simulations are validated based on its correctness criteria. The results are obtained for the plaquette observable for a SU(2) Yang Mills in two dimensions with com- plex coupling. The project also serves as a review on the complex Langevin method and its numerical implementations.
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