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## Study of entropy production in Yang-Mills theory with use of Husimi function

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Understanding the thermalization process in a pure quantum system is a challenge in theoretical physics. In this work, we explore possible thermalization mechanism in Yang-Mills(Y-M) theory by using a positive semi-definite quantum distribution function called Husimi function which is given by a coarse graining of Wigner function within the minimal uncertainty. Then entropy is defined in terms of the Husimi function, which is called the Husimi-Wehrl(H-W) entropy. We propose two numerical methods to calculate the H-W entropy. We find that it is feasible to apply the semi-classical approximation with the use of classical Y-M equation. It should be noted that the semi-classical approximation is valid in the systems of physical interest including the early stage of heavy-ion collisions. Using a product ansatz for the Husimi function, which is checked to give only some 10 % over estimate, we succeed in a numerical evaluation of H-W entropy of Y-M theory and show that it surely has a finite value and increases in time.

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