茨城大学セミナー（6/12 月）

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場所： E-301

Title： Reality from maximizing overlap in the future-included real action theory

Abstract： In the future-included real action theory whose path runs over not only past but also future, we demonstrate the theorem, which states that the normalized matrix element of a Hermitian operator O defined in terms of the future state at the final time T_B and the fixed past state at the initial time T_A becomes real for the future state selected such that the absolute value of the transition amplitude from the past state to the future state is maximized. This is a special version of our previously proposed theorem for the future-included complex action theory. We find that though the maximization principle leads to the reality of the normalized matrix element in the future-included real action theory, it does not specify the future and past states so much as in the case of the future-included complex action theory. In addition, we argue that the normalized matrix element seems to be more natural than the usual expectation value. Thus we speculate that the functional integral formalism of quantum theory could be most elegant in the future-included complex action theory.
This talk is based on the collaboration with Holger Bech Nielsen (arXiv:1705.01585 [quant-ph]).