

# 茨城大学セミナー (5/18 月)

講師: 永尾 敬一 氏 (茨大)

日時: 2015/5/18 12:00-13:00

場所: E-301

Title: Reality and Hermiticity from maximizing overlap in the futureincluded complex action theory

Abstract: In the complex action theory whose path runs over not only past but also future we study a normalized matrix element of an operator  $O$  defined in terms of the future state at the latest time  $T_B$  and the past state at the earliest time  $T_A$  with a proper inner product which makes a non-normal Hamiltonian at first given normal. We present a theorem which states that provided that the operator  $O$  is  $Q$ -Hermitian, i. e. Hermitian with regard to the proper inner product the normalized matrix element becomes real and time-develops under a  $Q$ -Hermitian Hamiltonian for the past and future states selected such that the absolute value of the transition amplitude from the past state to the future state is maximized. Furthermore, we give a possible procedure to formulate the  $Q$ -Hermitian Hamiltonian in terms of  $Q$ -Hermitian coordinate and momentum operators, and construct a conserved probability current density. This talk is based on the collaboration with Holger Bech Nielsen(arXiv:1502.00385[quant-ph], to be published in PTEP).