

國立中山大學應用數學系

學術演講

- 講者：Professor Benoit Collins (Kyoto University)
- 講題：Regularized minimum output entropy and generalized Haagerup inequalities
- 時間：2019/10/31 (Thursday) 14:10 ~ 15:00
- 地點：理學院四樓理 SC 4011 室
- 茶會：13:40 於理 SC 4010 室 (系辦公室)

Abstract

One of the most difficult problem in Quantum Information Theory is to generate highly entangled vector subspaces of a tensor product of Hilbert spaces, and in turn, quantum channels with a small ancilla space, where all pure states are sent to a highly mixed outcome. In works with Hayden and Nechita, we proved that it is possible to do so thanks to free probability techniques, however we didn't know whether nice information theoretic properties subsist under repeated uses of a quantum channel — that is, under taking multiple tensor products. Here, we give an answer to this problem and supply for the first time sharp estimates of regularized minimum output entropy for non-trivial random quantum channels with high minimum output entropy. We rely heavily on free probability techniques and on an ad hoc generalization the celebrated Haagerup inequality. This is a joint work with Sang Gyun Youn (Queen's, Canada).

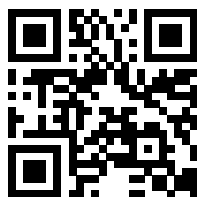
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