

1096-81-935

Takuya Machida* (machida@stat.t.u-tokyo.ac.jp), 515-4 Tookaichiba, Midori, Yokohama, Kanagawa 2260025, Japan. *Limit distribution of a 2-state quantum walk on the line with a delocalized initial state.*

Quantum walks are quantum analog of random walks. Since a limit distribution of a discrete-time quantum walk on the line was derived in 2002, a lot of limit theorems for the quantum walks with a localized initial state have been reported. In my presentation, we focus on a convergence theorem in distribution of a discrete-time 2-state quantum walk on the line with a delocalized initial state. From the theorem, we realize that the quantum walk can create the Gauss, Wigner semicircle, arcsine, and uniform distributions. The result in my presentation is based on [1].

[1] Machida, T.: Realization of the probability laws in the quantum central limit theorems by a quantum walk, *Quantum Information and Computation*, Vol.13 No.5&6, pp.430-438 (2013), arXiv:1208.1005. (Received September 11, 2013)