1116-81-262 **Takuya Machida*** (tz14040@meiji.ac.jp), , Japan. *Limit distribution of a quantum walk on a two-dimensional square lattice.*

Quantum walks are quantum counterparts of random walks and the behavior of the quantum walkers has been revealed in long-time limit theorems. The first long-time limit distribution of a two-dimensional walk was obtained in 2008 and the walker is characterized by both localization and linear diffusion [1]. On the other hand, a quantum walk presented in my talk delocalizes and its limit distribution, hence, has just a linear diffusion part. We employ two kinds of coin-flip operator and demonstrate a limit distribution for each operator. The limit density functions show features different from the one obtained in the past study. The result in my presentation is based on [2].

[1] K. Watabe, N. Kobayashi, M. Katori, N. Konno : Limit distributions of two-dimensional quantum walks, Phys. Rev. A, 77(6), 062331 (2008).
[2] T. Machida, C. M. Chandrashekar, N. Konno, T. Busch : Limit distributions for different forms of four-state quantum walks on a two-dimensional lattice, Quantum Information and Computation, Vol.15 No.13&14, pp.1248-1258 (2015). (Received August 19, 2015)