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Yutaka Shikano* (yshikano@ims.ac.jp), 38 Nishigo-Naka, Myodaiji, Okazaki, Aichi 444-8585, Japan. *On Inhomogeneous Quantum Walk.*

We have recently developed the discrete time quantum walk with the spatial different coins. In the spatially random coin case, the Anderson localization like behavior can be observed. In the spatially aperiodic coin case, the different type localization can be observed. To obtain the relationship between the localization and the delocalization, we have studied the eigenvalues of the one-step quantum walk operator. In the spatially aperiodic coin case, the Hofstadter butterfly is shown and gives an evidence of the multifractal system. (Received September 13, 2012)