

1106-81-2176 **Yusuke Ide***, 3-27-1 Rokkakubashi, Kanagawa-ku, Yokohama, Kanagawa 221-8686, Japan. *Rényi entropy for discrete-time quantum walks on the line.*

Rényi entropy is an important quantity in the information theory because it includes several useful entropy measures such as Shannon entropy, Min-entropy and so on, as special choices of its parameter. In this talk, we show a limiting behavior of the Rényi entropy for discrete-time quantum walks on the line which are starting from the origin and defined by arbitrary coin and initial state. The result shows that the Rényi entropy tends to infinity in logarithmic order of time and difference between the Rényi entropy and the logarithmic function characterizes by the Rényi entropy of the limit distribution of the quantum walk. (Received September 16, 2014)