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Etsuo Segawa* (e-segawa@m.tohoku.ac.jp), Aoba, Sendai, 980-8579, Japan. *Quantum walks on hyperbolic graphs.*

We consider a special class of quantum walks including the Grover walk. We show that every quantum walk in this class has an underlying cellular automaton which can be regarded as a spatial and temporal discrete analogue of a wave equation. It is known that the spectrum of the quantum walk on finite graph is obtained by the cellular automaton and a spatial structure of the graph; named cycles. In this talk, on infinite graphs, we discuss the case that another geometric structure; named hyperbolicity, is also reflected to its spectrum and behaviors of the quantum walk. (Received September 13, 2014)