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**Chaobin Liu\*** ([cliu@bowiestate.edu](mailto:cliu@bowiestate.edu)), Department of Mathematics, Bowie State University, 14000 Jericho Park Road, Bowie, MD 20715. *From open quantum walks to unitary quantum walks*. Preliminary report.

We present an idea to transform an open quantum walk into a unitary quantum walk on lattices or on finite graphs. This approach generalizes the theoretical framework introduced by Szegedy for quantizing Markov chains to the domain of open quantum walks (or quantum Markov chains). For the unitary quantum walks formulated in this paper, we define the probability and the average of probability over time of finding the walker at a node, then derive its asymptotic probability distribution. (Received September 09, 2018)