Hitting time for the continuous quantum walk MARTIN VAR-
BANOV, University of Southern California — A new definition of hitting (absorbing)
time is formulated for the case of continuous quantum walks. The walk is measured
randomly according to a Poisson process with measurement rate λ. We derive an
explicit formula for the hitting time and explore its dependence on the measure-
ment rate. We show that in the two limits of the measurement rate going to 0 or
infinity the hitting time diverges, where the second limit is representative of the
quantum Zeno effect. Several different conditions for existence of infinite hitting
time are proven by analyzing the analytical structure of the formula for the infinite
hitting time. A different condition for existence of infinite hitting times based on
the disconnectedness of the complementary graph is proven as well.

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