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Quantum estimation with driven quantum walk

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Using quantum Fisher information (QFI), we will show that parameter estimation with a driven discrete-time quantum walk (QW) provides a better bound over the attainable precision when compared to standard QW. Here, we are studying the quantum estimation of the phase parameter of the evolution operator. With this study, we can also show that QW set-up can be used to reduce the variance in the phase estimation of Mach-Zender interferometer for a fixed number of measurements.

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