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Aspects Of Non-Markovianity In Quantum Walks

Abstract: After motivating the need for a study of Open Quantum Systems, we introduce, briefly, quantum operations and use it to discuss a few well known noise processes. We then move to some recent developments in the efforts to understand non-Markovian phenomenon. Our discussion about non-Markovian behaviour will be made in the backdrop of some well-known non-Markovian processes. We show how different sources of non-Markovianity could be disambiguated. All this is done using the platform of Quantum Walks.