International Conference on Quantum Energy 2025 hosted by Dipartimento di Fisica e Astronomia Galileo Galilei an event by ICQE

Contribution ID: **29** Type: **Poster presentation**

# Role of repeated measurements in quantum transport by chiral quantum walks

Quantum walks are the quantum counterparts of classical random walks, and serve as a powerful framework for modeling quantum transport, with various applications in quantum computing and energy transfer. In particular, chiral quantum walks introduce a complex phase in the Hamiltonian, creating a directional bias in the dynamics that can enhance transport efficiency.
In this study, we investigate the transfer of a single excitation between two different sites on a cycle graph, using a continuous-time chiral quantum walk. We analyze the effect of repeated projective measurements on the target site, exploring how they affect the dynamics of the excitation. By optimizing key parameters, namely the Hamiltonian phase and the time interval between measurements, we identify conditions that maximize the detection probability on the target site. Our results provide new insights into the role of chiral dynamics and measurement strategies in optimizing quantum transport, with potential implications for energy transfer processes.

## Theme

Theme 2. Quantum effects in energy processes and materials

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**Track Classification:** Theme 2. Quantum effects in energy processes and materials