



Seminar, Department of Physics, Bose Institute, Kolkata

Quantum Walking: A paradigm for quantum simulation
and computation

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Abstract:

Quantum walks are the quantum generalization of random walks and form a powerful algorithmic technique for quantum simulations. In this talk, I will give an overview of the versatility and flexibility of quantum walks and showcase their utility as a subroutine in quantum algorithms, and as a paradigmatic approach to modeling quantum dynamics. I shall discuss the modeling of quantum percolation [1], an extension of Google's PageRank [2], random number generation [3], and a scheme to realize universal quantum computation [4] with this toolkit.

References:

1. [J. Phys. Commun. 3, 125004 \(2019\)](#)
2. [Quantum Inf. Process. 19, 158 \(2020\)](#)
3. [arXiv:2202.10933 \(2022\)](#)
4. [Scientific Reports 11, 11551 \(2021\)](#)

Date/time: June 21, 2023 (Wednesday) at 12:00 noon

Venue: Physics Seminar Room (204, second floor, UAC, BI)