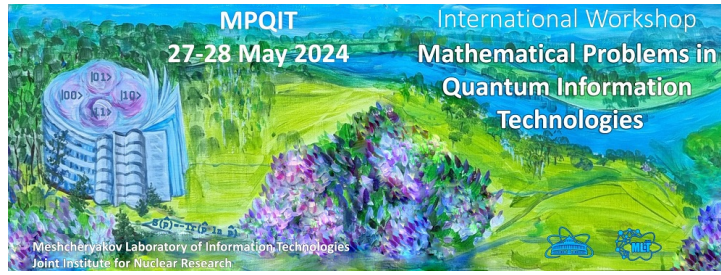


Mathematical Problems in Quantum Information Technologies



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Quantum Information Scrambling and Entanglement: A Mathematical Connection

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Quantum Information scrambling is a measure of quantum chaos and attracted the huge attention of the quantum information community now a days. To perform this measure, the out-of-time order correlator (OTOC) operators are used. On the other hand, Woote's bipartite concurrence is a measure of bipartite entanglement, in this work we establish the mathematical connection between quantum information scrambling and Woote's concurrence and investigate the mathematical challenges to establish such connections in higher dimensional Hilbert spaces. By such a mathematical connection, one can directly measure either one of the quantity, once any one quantity is known.

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