ЛАБОРАТОРИЯ ИНФОРМАЦИОННЫХ ТЕХНОЛОГИЙ

Tuesday 23 April 2019, 15.00
Room 310

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Linear-optical interferometer structure optimization for implementing multiphoton quantum gates

The talk covers the problem of optimal linear-optical interferometer design for multiqubit photonic quantum gate implementation purpose. Linear-optical multiqubit gates have intrinsically probabilistic nature since photons do not interact with each other in the linear optical systems. The optimal interferometer should transform the input Fock state according to the required quantum gate or prepare the desired output state with maximal possible success probability. The task of finding the optimal interferometer structure may be boiled down to finding the appropriate root of the polynomial equation system based on the coefficients of the unitary matrix describing the interferometer and the success probability. The talk presents the state-of-the-art results in the linear optical circuit design and demonstrates numerical methods and results of solving this problem.