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Divisibility of quantum processes and stroboscopic simulations of quantum dynamics

Thursday, 26 May 2022 15:30 (1 hour)

The concept of divisibility of dynamical maps will be used to introduce an analogous concept for quantum channels by analyzing the simulability of channels by means of dynamical maps. In particular, this is addressed for Lindblad divisible, completely positive divisible and positive divisible dynamical maps. The corresponding L-divisible, CP-divisible and P-divisible subsets of channels are characterized and visualized for the case of qubit channels. We will discuss their mutual relations. Motivated by the analogy between the channel divisibility and the integer factorization we will further address the question of strictly n -divisible channels. In particular, we will explain that, surprisingly, divisible channels are also infinitely divisible ones.

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