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A new bound on quantum Wielandt inequality

The Wielandt number for a primitive matrix with non-negative entries, is the minimum number of self-compositions needed so that all its entries become non-zero. In 2010, this concept has been generalized for trace preserving and completely positive maps (quantum channels). In this talk, I will establish a bound on quantum Wielnadt inequality for positive maps as opposed to quantum channels. This bound depends only on the dimension of the system the map is acting on and not on the map itself. The techniques used to get this new bound provides a way to obtain improved bounds for this inequality for some specific classes of quantum channels. The motivation of this work is to provide an answer to a question raised by Sanz-Garcia-Wolf and Cirac who introduced the Wielandt inequality for quantum channels.