A measure in the space of mixed quantum states of bipartite systems is required to characterize the properties of these states. For instance, it is useful to obtain the probability of finding a particular state or to compute the average entanglement. This paper starts by reviewing the natural measure in the space of pure states and different measures in the space of mixed states. Then it studies measures induced by the operation of partial tracing. The natural measure in the space of pure states induces a unique measure in the space of the mixed states. If both subsystems have the same dimensions, the induced measure is equal to the Hilbert-Schmidt measure. Finally, some averages are computed with respect to this measure.

Reviewed by Adán Cabello

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