Introduction

Consider some N-particle quantum state, in which the N particles are shared between spatial regions A and B, or Alice and Bob. If Alice's and Bob's particles are entangled, this entanglement could be as a resource, for quantum teleportation, for example. Nevertheless, by using the traditional Von Neumann or Renyi Entanglement entanglement entropy, an overshot measure of the available entanglement is obtained. This happens because for applications that rely on quantum entanglement, the particle number has to be conserved and these traditional measures do not account for it. To address this issue, Wiseman and Vaccaro [WISEMAN and VACCARO REF!!!!!!!!!!] developed the measure now known as Operational Entanglement (originally called Entanglement of Modes by the authors). The operational entanglement takes into account that the local particle number that are in Alice and Bob has to be conserved, giving a more physically feasible measure of entanglement. It is expected that operational entanglement will be less than the usual spatial entanglement measures mentioned above.