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Title:	Role of EPR correlation in Gaussian quantum teleportation
Authors:	Bose, S. (/jspui/browse?type=author&value=Bose%2C+S.)
Keywords:	EPR correlation gaussian state quantum teleportation
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Abstract:	Quantum teleportation (QT) plays a central role in state-of-the-art information science and technology that necessitates proper characterization of the resources. While entanglement is known to be necessary, condition of sufficiency for QT still remains an open question. Here, we partially answer this question in light of Einstein-Podolsky-Rosen (EPR) correlation. In the case of input coherent state, we provide an analytic proof that with a general two-mode Gaussian entangled resources EPR correlation is sufficient for QT. For a relatively restricted set of Gaussian states, however bigger than that of the symmetric states, we further show that EPR correlation is both necessary and sufficient. On the other hand, in the case of Gaussian pure input, our numerical results hint that EPR correlation mostly appears to be a necessary condition only. However, the necessary and/or sufficient condition for QT of a Gaussian mixed input state, apart from the entanglement, still remains an open question.
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