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Preservation of non-classicality in the continuous-variable quantum teleportation FULI LI, TIEGANG DI, M. SUHAIL ZUBAIRY, Department of Physics and Institute for Quantum Studies, Texas A&M University — The relation between the P-functions of the input and output states in the protocol of quantum teleportation of continuous variables of an optical field is established. Based on this relation, we find a condition involving the squeezing parameter and the detector efficiency, under which the P-function of the output state becomes the Q-function of the input state such that any non-classical features in the input state will be eliminated in the teleported state. In particular, we notice that if the homodyne detection efficiency is less than 0.5 the teleported field must be classical even if the entanglement in the quantum channel is perfect.

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