Entanglement purification of multi-mode quantum states

J. Clausen J.Clausen@tpi.uni-jena.de
L. Knöll D.-G. Welsch Friedrich-Schiller-Universität Jena

abstract An iterative random procedure is considered allowing an entanglement purification of a class of multi-mode quantum states. In certain cases, a complete purification may be achieved using only a single signal state preparation. A physical implementation based on beam splitter arrays and non-linear elements is suggested. The influence of loss is analyzed in the example of a purification of entangled N-mode coherent states.