Interferometric Determination of Concurrence of Unknown Two-Qubit Entanglement S.-S. B. LEE, H.-S. SIM, KAIST — We propose a scheme for both distilling and quantifying entanglement, applicable to individual copies of an arbitrary unknown two-qubit state. It is realized in a usual two-qubit interferometry with local filtering. Proper filtering operation for the maximal distillation of the state is achieved, by erasing single-qubit interference, and then the concurrence of the state is determined directly from the visibilities of two-qubit interference. For some representative quantum states, the efficiency is compared between our interferometric scheme and the full state tomography. For some states, our scheme is revealed to be more efficient than the tomography.

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