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**Single-experiment-detectable nonclassical correlation witness**

ROBABEH RAHIMI, AKIRA SAITOH, Interdisciplinary Graduate School of Science and Engineering, Kinki University, Japan — We introduce an operational method to detect nonclassical correlation of bipartite states for the paradigm related to the zero-way quantum deficit, which claims that a bipartite state described by a density matrix having no product eigenbasis possesses nonclassical correlation. This method is called nonclassical correlation witness since it uses particular maps which in construction are close to the well-established entanglement witnesses. It is also proved that the witness may be generally decomposed into nonlocal operations in addition to local ensemble measurements. Hence the detection in bulk-ensemble systems is performed in a single run experiment. For further details, see arXiv:0911.3460.

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