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Title:	Authentication protocol based on collective quantum steering
Authors:	Singh, Jaskaran (/jspui/browse?type=author&value=Singh%2C+Jaskaran)
Keywords:	Correlation Exhibit Quantum
Issue Date:	2019
Publisher:	American Physical Society
Citation:	Physical Review A,99(1).
Abstract:	It is well known that certain quantum correlations like quantum steering exhibit a monogamous relationship. In this paper, we exploit the asymmetric nature of quantum steering and show that there exist states which exhibit a polygamous correlation, known as collective correlation [He and Reid, Phys. Rev. Lett. 111, 250403 (2013)], where the state of one party, Alice, can be steered only by the joint effort of the other two parties, Bob and Charlie. As an example, we explicitly single out a particular set of three qubit states which exhibit this polygamous relationship, known as collective steerability. We provide a recipe to identify the complete set of such states. We also provide a possible application of such states to an information theoretic task, termed as quantum key authentication (QKA) protocol. QKA can also be used in conjunction with other well-known cryptography protocols to improve their security, and we provide one such example with quantum private comparison.
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