Title:	Quantum key distribution protocol based on contextuality monogamy
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Abstract:	The security of quantum key distribution (QKD) protocols hinges upon features of physical systems that are uniquely quantum in nature. We explore the role of quantumness, as qualified by quantum contextuality, in a QKD scheme. A QKD protocol based on the Klyachko-Can-Binicioğlu-Shumovsky (KCBS) contextuality scenario using a three-level quantum system is presented. We explicitly show the unconditional security of the protocol by a generalized contextuality monogamy relationship based on the no-disturbance principle. This protocol provides a new framework for QKD which has conceptual and practical advantages over other protocols.
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