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State-independent experimental test of quantum contextuality in an indivisible system[1] CHONG ZU, YUEXUAN WANG, Center for Quantum Information, IIIS, Tsinghua University, Beijing, China, DONGLING DENG, Department of Physics, University of Michigan, Ann Arbor, Michigan 48109, USA, XIUYING CHANG, KE LIU, PANYU HOU, HAOXIANG YANG, Center for Quantum Information, IIIS, Tsinghua University, Beijing, China, LUMING DUAN, Department of Physics, University of Michigan, Ann Arbor, Michigan 48109, USA —
We report the first state-independent experimental test of quantum contextuality on a single photonic qutrit (three-dimensional system), based on a recent theoretical proposal [Phys. Rev. Lett. 108 030402 (2012)]. Our experiment spotlights quantum contextuality in its most basic form, in a way that is independent of either the state or the tensor product structure of the system.

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Chong Zu
Center for Quantum Information, IIIS, Tsinghua University, Beijing, China

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