Bell's Theorem Without Inequalities for Arbitrarily High-Dimensional Fermionic System

CHEN Chang-Yong,[1,2,3] ZHANG Xiao-Long,[2,3] and GAO Ke-Lin[2,3]

[1] Department of Physics, Hunan Institute of Humanity and Science and Technology, Loudi 417000, China
[2] State Key Laboratory of Magnetic Resonance and Atomic and Molecular Physics, Wuhan Institute of Physics and Mathematics, the Chinese Academy of Sciences, Wuhan 430071, China
[3] Center for Cold Atom Physics, the Chinese Academy of Science, Wuhan 430071, China
(Received: 2004-9-27; Revised:)

Abstract: A generalized proof of Bell's theorem without inequalities via the singlet state of two spin-$(2n + 1)/2$ fermionic particles for two observers is proposed. It is a direct and meaningful extension of that presented by A. Cabello [Phys. Rev. A67 (2003) 032107] and the proof from A. Cabello is included in our proof as a special example.

[Full text: PDF]

Close