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Continuous-variable quantum games. (English) Zbl 1005.81011

Phys. Lett., A 306, No. 2-3, 73-78 (2002).

Summary: We investigate the quantization of games in which the players can access a continuous set of classical strategies, making use of continuous-variable quantum systems. For the particular case of the Cournot's duopoly, we find that, even though the two players both act as "selfishly" in the quantum game as they do in the classical game, they are found to virtually cooperate due to the quantum entanglement between them. We also find that the original Einstein-Podolsky-Rosen state contributes to the best profits that the two firms could ever attain. Moreover, we propose a practical experimental setup for the implementation of such quantum games.

MSC:

81P15 Quantum measurement theory, state operations, state preparations

91A80 Applications of game theory

Cited in **1** Review
Cited in **15** Documents

Keywords:

quantization; quantum entanglement; Einstein-Podolsky-Rosen state

Full Text: [DOI](#)

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