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Violation of Bell's Inequalities and the Idea of a Quantum Computer

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Message from the Guest Editor

Dear Colleagues,

Quantum mechanics is considered fairly to be the most successful theory of physics. But this theory arose as a result of fierce disputes between its creators. Numerous experimental violation of Bell's inequalities are considered to be evidence of the EPR correlation. Therefore, the unfinished quantum debate about Bell's inequalities is connected with the question about the reality of a quantum computer. This connection highlights the relevance of this Special Issue on "Violation of Bell's inequalities and the idea of a quantum computer" in which different perspectives on the violation of Bell's inequalities and the reality of a quantum computer should be presented. The questions of the Issue concern a wide range of problems in physics, mathematics, philosophy, and even the history of quantum mechanics. The latter is important, since the problem of Bell's inequality and the idea of a quantum computer are difficult to understand correctly without knowing the history of creation and controversies about quantum mechanics. Philosophy is important in connection with the question of the possibility of refuting realism.



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Special Issue



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Message from the Editor-in-Chief

The concept of entropy is traditionally a quantity in physics that has to do with temperature. However, it is now clear that entropy is deeply related to information theory and the process of inference. As such, entropic techniques have found broad application in the sciences.

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