MAR12-2011-000319

Abstract for an Invited Paper
for the MAR12 Meeting of
the American Physical Society

Information Causality as a physical principle

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It is known that the physical principle of "no-signaling" alone does not single out quantum correlations, and that the post-quantum no-signaling correlations share many of the features that are supposed to define quantum physics (intrinsic randomness, no-cloning, violation of Bell's inequalities...). This talk focuses on the principle of Information Causality (IC), which generalizes no-signaling and has been proved to come close to singling out quantum correlations. I shall review the successes of IC and also the difficulties that the subsequent research is meeting. In particular, I shall emphasize how a generalization of the initial bipartite scenario to a multipartite one is a most urgent necessary step.