

MAR11-2011-020257

Abstract for an Invited Paper
for the MAR11 Meeting of
the American Physical Society

Less Reality, More Security

ARTUR EKERT, Oxford University and National University of Singapore

Bell's inequality makes a seemingly insane scenario possible — devices of unknown or dubious provenance, even those that are manufactured by our enemies, can be safely used for secret communication. And this is for real! All that is needed to implement such a bizarre form of cryptography is a loophole-free violation of Bell's inequalities. It is on the edge of being technologically feasible. I will provide a brief overview of quantum and post-quantum cryptography and describe how studies of entanglement and the foundations of quantum theory influenced the way we may soon protect information.