



Quantum Computing and Cryptography - 17: The EPR Paradox and CHSH Game

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| Length | Micromodule |
| Collection | NSA NCCP |
| Updated | March 14, 2019 |
| Contributors | Abhishek Parakh |
| Academic Levels | Undergraduate, Graduate |
| Topics | Cryptography, Quantum Computing |
| Link | https://clark.center/details/aparakh/fef0dbd8-b37d-49cd-9ed1-36fd17b0ea29 |

Description

This important lesson illustrates the subtle effects of quantum entanglement and discusses an experiment that "truly" established the "correctness" of quantum mechanics. The lesson discusses the significance of EPR (entangled) pairs and their implications. This is followed by a discussion of Bell's inequality and the famous CHSH game that verifies Bell's inequality.

The files are named nanomodules but it will take between 1 to 4 hours to complete all the exercises.

Email Dr. Abhishek Parakh at aparakh@unomaha.edu for solutions to the problems.

Note: To get started with Jupyter notebooks please follow the userguide available at: <https://sites.google.com/unomaha.edu/userguideqcl/>

Outcomes

- Summarize Bell's inequality and CHSH game that verifies Bell's inequality.
- Outline the significance of EPR pairs and their implications.

Links

External links that are associated with this learning object

- [User guide](#)