



Library Indian Institute of Science Education and Research Mohali



DSpace@IISERMohali / Thesis & Dissertation / Master of Science / MS-15

Please use this identifier to cite or link to this item: <http://hdl.handle.net/123456789/1397>

| | |
|-------------------------|---|
| Title: | An approach to global Quantum Communication using satellite quantum key distribution |
| Authors: | Kaur, Nimrat |
| Keywords: | Quantum satellite quantum QKD BB84 protocol |
| Issue Date: | May-2020 |
| Publisher: | IISERM |
| Abstract: | Quantum key distribution (QKD) is the result of the need of a more secure communication channel as compared to a classical channel. It is a quantum alternative to classical cryptography, and is inherently secure and ideally unhackable. It became widely popular in the quantum world after the protocol given in the 1984 paper by Charles Bennett and Gilles Brassard(BB84 protocol), followed by a series of different protocols designed by scientists from all around the globe. While the security of QKD is unmatched, but the distance over which QKD can be achieved is very small as compared to classical communication. It is because the photons used for QKD are diminished very easily due to atmospheric turbulence over large distances. The quantum signals can't be amplified noiselessly like classical signals owing to the quantum no-cloning theorem, which posed a difficulty to the applicability of QKD over large distances. To overcome the short range problem of QKD, satellite QKD was suggested, as the actual atmospheric distance that the photons would then have to travel would be equal to earth's atmosphere, which is easily achievable. So satellite quantum key distribution becomes the only viable method to actually achieve a global quantum communication. |
| URI: | http://hdl.handle.net/123456789/1397 |
| Appears in Collections: | MS-15 |

Files in This Item:

| File | Size | Format | |
|-----------------------------|-----------|-----------|---------------------------|
| MS15054.pdf | 621.62 kB | Adobe PDF | View/Open |

Show full item record



Items in DSpace are protected by copyright, with all rights reserved, unless otherwise indicated.