An Authentication Protocol for Quantum Enabled Mobile Devices

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Abstract : The quantum communication technology is an evolving design which connects multiple quantum enabled devices to internet for secret communication or sensitive information exchange. In future, the number of these compact quantum enabled devices will increase immensely making them an integral part of present communication systems. Therefore, safety and security of such devices is also a major concern for us. To ensure the customer sensitive information will not be eavesdropped or deciphered, we need a strong authentications and encryption mechanism. In this paper, we propose a mutual authentication scheme between these smart quantum devices and server based on the secure exchange of information through quantum channel which gives better solutions for symmetric key exchange issues. An important part of this work is to propose a secure mutual authentication protocol over the quantum channel. We show that our approach offers robust authentication protocol and further our solution is lightweight, scalable, cost-effective with optimized computational processing overheads.

Conference Title : ICQKDA 2018 : International Conference on Quantum Key Distribution Applications
Conference Location : New York, United States
Conference Dates : December 17-18, 2018