SELECTED TOPICS IN ADVANCED ELECTRONICS

Edited by

Khalid A. S. Al-Khateeb

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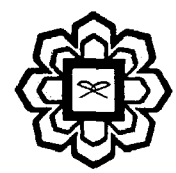

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CHAPTER 11

EAVESDROPPING ATTACKS ON QKD CHANNELS

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Synopsis

For the security of QKD, it is crucial to determine as precisely as possible the amount of information that might have leaked to Eve. Its knowledge allows Alice and Bob to choose such security parameter t that privacy amplification will safely obliterate Eve.s information on the distilled key. Let us first take a closer look at two simple attacks that Eve could mount, intercept/resend and beam splitting.

1. Introduction

One of the most formidable tasks to safeguard against intruder attacks on secure messaging systems is to recognize the technique used by the attacker. The attacker on the other hand will also try to avoid being detected. One of the methods used by the attackers is to intercept the message and resend it to mislead the corresponding parties that their channel of communications is safe. Another method would be to steel part of the signals carrying the message by beam splitting. Of course there is variety of other methods and techniques.

It is customary in the security of messaging systems to refer to the intruder or eavesdropper as (Eve), to the sender as (Alice) and the receiver as (Bob).