A Review of Secret Key Distribution Based on Bounded Observability

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Abstract Secret key distribution is a technique for a sender and a receiver to share a secret key, which is not known by any eavesdropper, when they share no common secret information in advance. By using this technique, the sender and the receiver can transmit a message securely in the sense that the message remains secret from any eavesdropper. We introduced a secret key distribution based on the Bounded Observability (Muramatsu et al. 2010, 2013, 2015), which provides a necessary and sufficient condition for the possibility of secret key distribution. This condition describes limits on the information obtained by observation of a random object, and models the practical difficulty of completely observing random physical phenomena.

Keywords Secret key distribution · Information-theoretic security · Secret key agreement · Bounded observability

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